AMATEUR RADIO

JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA

VOL 53, No 10, OCTOBER 1985

AMATEUR RADIO

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	Cure diam. (mm)	Wt of 200mtrs (gms)	Tensile Str (kg)	Cure diam. (mm)	Wt of 200mtrs (gms)	Tensile Str (kg)
Debeglass	2.2	1.9	430	3.0	4.1	680
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Photograph courtesy Peter Koen, Secretary of VK5BPA.

Patrick Gill, the seven year old son of Bob VK5NVM, tunes his crystal set which he loaned for display with his dad's display of valves. Other amateur gear was from the Telecom Museum courtesy of Mr Jack Ross, Peter Maddern VK5PRM, Jack Trembath VK5JT and Bob Clifton VK5QJ. The display was in the window of Radio Rentals (SA) in the Rundle Mall on Friday, 31st May 1985, during Amateur Radio Week.

AMATEUR RADIO

Published monthly as the official journal by the Wireless Institute of Australia, founded 1910. ISSN 0002 — 6859. Registered Office: 3/105 Hawthorn Road, Caulfield North, Vic. 3161. Telephone: (03) 528 5962.

SPECIAL FEATURES

TECHNICAL FEATURES

REGULAR FEATURES

October's Amateur Radio includes the VK5 Division's special contribution for the WIA's 75th Anniversary. A special story, by Marlene VK5QO, tells of the life of the Division from its inception in November 1919, through the days of experimentation with spark transmitters, the invention of pedal radio to black boxes and repeaters, to its sixtieth year in 1980 and another milestone for the Division, the election of the first female to the VK5 Council — certainly a historic step when one considers that around 1948 ladies were not invited to attend the Christmas Social. John Flynn, the Flying Doctor, was well known for his work in outback Australia but, a fact not so well known about this man was his membership of the WIA in 1925. A historic article of the Flying Doctor, Pedal Radio and Alf Traeger is included in the VK5 contribution, page 31.

Gordon VK2ZAB expounds some other theories, and expands upon the article in July by Doug VK3UM, about Aircraft Enhancement. See page 8.

The final article of this particular series, add-ons for the Siemens Teleprinter, appears in this issue, page 10. Peter VK3ZPF, describes the use of two seven segment LED displays to show how far the typing basket has travelled.

The new Rad Comms Act has now replaced the old Wireless Telegraphy Act. A general outline of information about the new Act appears on page 5.

At the end of August, Australia moved into the Space-age of terrestrial based communication, when her own satellite was launched into space by the American spaceshuttle 'Discovery', see page 12. The inset photograph on the front cover is an artist's impression showing AUSSAT 1's coverage, depicting national and spot beam footprints over the continent. Thanks to AUSSAT Pty Ltd for supplying the picture.

This month sees the staging of the 28th JOTA. Max VK3ZS has documented, page 17, how JOTA came into being and a general history of the contribution made by the WIA.

DEADLINE

All copy for inclusion in the December 1985 issue of Amateur Radio, including regular copy of columns and Hamads, must arrive at PO Box 300, Caulfield South, Vic. 3162, at the latest, by midday 23rd October.

EDITOR'S COMMENT

ANNIVERSARIES

October is notable each year for the annual Jamboree on the Air, in which the amateur radio movement makes possible on a world-wide basis, a weekend of personal contact between Scouts, Guides, Cubs and Brownies: not to mention their leaders! But 1985 is a notable year in itself, being both the 75th Anniversary of the WIA and also the 75th Anniversary of the Girl Guide movement. Indeed, 1910 was a year of very significant innovation. So when you welcome your special visitors to your Jamboree station on the 19th and 20th of this month, the girls will have something more to talk about than in other years.

There are other more personal anniversaries which we propose to begin noting from early in 1986. The VK2 Division suggested recently that we should publish a list of all those who have reached the milestone of WIA membership for 50 years. This is not quite as easy as it might seem, involving a search of the records of each Division (which may be incomplete), and cross-checking against current membership in all Divisions. There is a high risk of errors and omissions in this procedure, so we suggest that those most interested in such a list, the 50 year members themselves, should notify their Divisional Secretary, or the Federal Office directly, of the details. The list is planned to include:

Present Call sign, Previous Call signs (if any), Name and locality, Date of joining the WIA.

We hope to publish an initial listing in February and then add to it every three months. How about it, Old Timers? Divisional Secretaries, too.

Another milestone which has been in the news recently, is that 1985 is the 40th anniversary of the nuclear bombing of Hiroshima and Nagasaki, and the end of World War 2. The fact that nuclear weapons have never been used since, even though there have been many smaller wars, is a hopeful sign that the human race is not unavoidably motivated towards global suicide. Many of us have contacted amateurs living in those two Japanese cities, and the fact that we can do so in peace and friendship in spite of the hatred and destruction of the war years should give us some hope for the future. May the international bonds of amateur radio and also Scouts and Guides help towards a world in which, not only nuclear weapons but wars themselves become outmoded relics of our barbaric past!

Bill Rice VK3ABP
Editor.
AR

QSP

RADIOCOMMUNICATIONS ACT NOW IN FORCE

The long-awaited Radiocommunications Act has now replaced the 80 year old Wireless Telegraphy Act. Its broad range covers, particularly those areas in which the WT Act was ineffective.

Working on replacing the old Act began about 15 years ago, when its inadequacy to deal with modern and developing communication technologies had become apparent. When the WT Act was introduced, wireless telegraphy was in its infancy. Today, the many uses of the radio spectrum affect everyone.

The Department of Communications (DOC) sees the Act, which came into force on 20th August 1985, as vitally important for the efficient management of the radio-frequency spectrum. It gives DOC the necessary powers to cope with the vast range of uses now being made of the spectrum, and recognises the modern electronic environment and the issue of electromagnetic compatibility (EMC).

The formulation of the Act, and the Regulations, has involved the slow process of extensive consultation with the users of the spectrum, manufacturers, importers and others affected by the new laws.

The Wireless Institute of Australia, with its CASPAR Committee, has been involved in the consulation process for many years. This will continue as regulations and standards are evolved.

DOC will have new powers to deal with all forms of radio frequency interference (RFI), from all sources, not just from radio equipment. Common interference sources to radio receivers include electric motors, welders, thermostats and power lines.

Users of electronic home entertainment equipment will also benefit. TV sets, VCRs, stereo units, electronic organs and intercoms sold in Australia will be required to comply with standards of immunity to RFI. In time, less and less equipment with inadequate immunity against RFI will be used by the community. DOC intends to make standards for all radio communications and other equipment likely to be affected by RFI.

It will be an offence to supply, possess or use equipment which does not meet a standard or to modify it in such a way that it ceases to comply with the standard. Equipment made before the introduction of a standard will not be affected.

The Act creates a number of new offences, in addition to the obvious offence of unlicenced operators of a transmitter. These include using a transmitter causing interference to safety communications, using a transmitter to harass another person, or to transmit hoax calls.

Overall, the new Act will achieve two major improvements in the regulation of the spectrum. The first is the establishment of a regime that will, in time, control the causes of interference, and the susceptibility of equipment to interference. The second is the creation of offences, coupled with powers to achieve compliance, that will hopefully facilitate the role of the law enforcement agencies.

Copies of the Act can be bought from the Australian Government Publishing Service Bookshops, in all capital cities.

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WIA NEWS

UHF ATV — 50cm

Members of the Federal Executive have again met with the Department of Communications, Broadcasting Division, to discuss the progress of the Departments UHF ATV planning and the amateurs place in that plan.

These discussions are the result of a discussion paper on the future of 50cm ATV in the UHF band, put to the Department of Communications by the Institute at the beginning of this year.

The Department advised that progress was being made on a Channel Equalisation Plan for Commercial TV channel coverage. Policy on equalisation and the associated detailed planning still remain to be developed but, an announcement on the options will be made shortly by the Minister of Communications, Mr Duffy.

As a direct result of the meeting, the following points were advised by the Department of Communications:

a) the DOC Broadcasting Services Division accepted the principle of

continuing future co-existance of commercial and amateur TV in the 50cm band.

b) the present amateur allocation of 576-585MHz can remain for approximately another three years.

c) as detailed planning of the UHF translator services takes place, alignment of the amateur allocation with the UHF channelling plans may be required, at least in the Melbourne and Sydney areas. The present amateur allocation straddles channels 35 and 36.

d) if pressure for additional translator channels, beyond those presently envisaged, becomes apparent, WIA/DOC will examine the band plans to accommodate, if practicable, alternate 50cm amateur allocation/s in specific geographical areas.

AGE LIMITS FOR AMATEUR RADIO LICENCES TO BE REMOVED

Since 1982, it has been Wireless Institute of Australia policy to seek a reduction of the age limit, required for limited and full call amateur licences. At the Federal Convention in 1985, the Federal Executive of the Institute was asked to negotiate with the Department of Communications, for the complete removal of any age restriction for amateur licences.

The Executive, recognising that this is the International Year of Youth, made strong representations to the Department of Communications, that all age restrictions be removed. This was proposed at the WIA/DOC meeting of May 1985.

The Department of Communications, after consideration of this matter, have advised the Institute by letter, in August 1985, that the inconsistencies in the application of age restrictions in the various categories of amateur certificates and licences had arisen over the past years, due to 'patchwork' amendments to the regulations. In the new Radio Communications Act and its Regulations, there will be no reference to age limits for amateur licences/certificates. Therefore, from the proclamation date of the new Act, the only requirement to hold any grade of amateur licence, will be a pass in an amateur radio examination.

FEE INCREASES

The Radiocommunications Act 1983, came into effect in two stages . . . the Act as of midnight on 19th August 1985 and, then certain provisions in the ACT pertaining to 'offences' followed on 27th August 1985. During the period between these dates, offences will be dealt with under the old Wireless and Telegraphy provisions.

As a result of the Radio Communications Act being proclaimed on the 20th August, certain fees were increased.

EXAMINATION	**FEE**
Amateur Operator	
A Regulations	*5*
B Theory	*10*
C Telegraphy (sending)	*5*
D Telegraphy (receiving) 10	
	TOTAL 30
Limited Amateur Operator	
A Theory	*10*
B Regulations	*5*
	TOTAL 15
Novice Amateur Operator	
A Regulations	*5*
B Theory	*10*
C Telegraphy (sending)	*5*
D Telegraphy (receiving) 10	
	TOTAL 30

CERTIFICATES OF PROFICIENCY — all successful candidates will be charged $5.00 for each certificate.

The Department have advised the Institute that, the new charges relate to the costs of providing the examinations for candidates. Naturally, the Institute's officers have registered with the Department, their strong dissatisfaction at the lack of prior adequate discussion on the subject of licence and examination fees.

PHONE PATCH

On the question of phone patch, a WIA delegation from the Federal Office and the Victorian Division, met with Telecom Headquarters recently. The WIA pressed for improved conditions for amateur phone patch but, Telecom continued to take a firm stand against any improvement in conditions of phone patch for the amateur service. The WIA stressed the major differences between the amateur service and commercial users, particularly stressing the non-profit nature of our activities.

Telecom refused to accept this argument as a reason for any further improvement, in what they consider, to be generous conditions compared with those applying to commercial users. The WIA gave notice that they were not prepared to accept these views as final, and would wish to continue to discuss them. Telecom representatives agreed to meet with the Institute at any time it wished, in the future.

Telecom, however, did agree to discuss with the Institute, the design of a simplified interface unit for the amateur service, which could lead to a significant price reduction, compared to existing commercial units.

OCTOBER 1985

SUN	MON	TUE	WED	THU	FRI	SAT
		1	2	3	4	5 5 VK ZL O Phone Test
6 6 VK ZL O Phone Test	7 7 School Resumes-Qld Labour Day-NSW Labour Day-ACT	8	9	10 10 Launceston Show Day	11	12 12 Spanish Nat Day VK2 75th Dinner VK ZL O CW Test
13 13 VK ZL O CW Test RSGB 21/28MHz SSB Test	14 14 Labour Day-SA Queen's Birthday-WA Columbus Day-USA	15	16	17	18	19 19 JOTA
20 20 JOTA RSGB 21MHz CW Test	21 21 Labour Day-NZ	22 22 Gen Meet-VK5	23	24 24 Hobart Show Day United Nations Day	25	26 26 Austrian Nat Day Wagga Conv & Nat Fox Hunt VK2 Canoe WICEN CQ WW DX Phone
27 27 Daylight Saving Begins Wagga Conv & Nat Fox Hunt VK2 Canoe WICEN CQ WW DX Phone	28	29 29 Buy & Sell-VK5	30 30 8 wks to Christmas	31 31 Halloween		

HAZARDS OF RF RADIATION: NEW STANDARD

Allan Foxcroft VK3AE
Federal Standards Co-ordinator

Early this year, the Standards Association of Australia (SAA) issued Australian Standard 2772 — *"Maximum Exposure Levels — Radio Frequency Radiation — 300 kHz to 300 GHz"*. This represented over five years of work by the SAA's Committee TE/7 on Hazards of Non-ionising Radiation assisted by many others, with expertise in medicine, physics, engineering, commerce and trade union matters. The Wireless Institute of Australia was represented on the Committee by Rear Admiral Jim Lloyd VK1JL.

During the 1960s and 70s there was growing recognition, world-wide, that our knowledge and understanding of the biological effects of human exposure to electromagnetic fields was inadequate to meet the growing use of EM energy in industry, science, medicine, telecommunications, domestic and other applications. Research and study in this field was accelerated and the present Standard has been based on consideration of the mass of world literature and reports issued mainly in the period 1960-1985.

BIOLOGICAL EFFECTS

The foremost thing to remember about the new Standard is that it deals primarily with the safety of people — those who operate RF equipment as part of their occupation and those who may be exposed to RF by chance. Any regulatory or technical recommendations stemming from it are based on present biological/medical knowledge.

RF energy can have deleterious effects on the human body. RF burns and shocks are clear and immediate examples of this. However, sustained exposure to high level RF fields can also result in the formation of cataracts of the eyes and can affect the nervous system in a number of ways. The neural effects are not clearly demonstrated and usually relate to such vague features as fatigue, irritability, depression, loss of appetite and lowered physical and mental performance.

EXPOSURE LEVELS

The new Australian Standard specifies maximum exposure levels in terms of the acceptable power flux density (milliwatts per square centimetre or watts per square metre) which, for far-field conditions may be readily expressed in electric field strength or magnetic field strength. Two categories of maximum exposure levels are laid down: namely non-occupational levels applying to (a) the general public and (b) occupational, where a person is required to work in higher electromagnetic fields. Persons in the latter group are defined as radiation workers. It is recommended that the general public be protected to a level of one fifth that of radiation workers and typical acceptable maximum levels for continuous radiation are 2 mW/sq cm at 3MHz, dropping to 0.2mW/sq cm at 30 MHz and above. Compared with levels generally specified during the 1970s these represent a considerable tightening-up of the protection required by 5 to 50 times and reflect the greater current awareness of the possible hazards of non-ionising radiation.

EXCLUSIONS AND CONDITIONS

One of the most significant exclusions from this Standard, from the amateur point of view, is the hand-held portable transceiver running power output of not greater than 7W at frequencies lower than 1GHz. It has been accepted that these may produce localised fields in excess of the values prescribed for the general public. However, it is unlikely that the total amount of energy coupled into the whole of the human body would be significant.

There are a number of special "relaxation" clauses, some of which are confusing in their applicability, which relate to industrial exposure periods of less than 30 minutes. These are included to accommodate special maintenance situations or abnormal, one-off exposures of relatively short duration in which the actual period may be monitored and readily determined. There are no equivalent provisions for non-occupational exposure. Anyone wishing to make assessments of the acceptability of specific conditions should refer to the Standard itself.

PRACTICAL IMPLICATIONS

Probably the greatest impact will be found in the area of industrial radio frequency heating and welding where often many kilowatts of power are used and where workers are in close proximity to the source for significant periods. Surveys conducted within Australia and overseas of typical industrial RF heaters show that a substantial proportion of them could be regarded as unacceptable under the Australian Standard.

Insofar as communications services as a whole are concerned, excessive field strengths, if any, are likely to be confined to the immediate vicinity of antennas associated with high-powered equipments and certainly where normal current practices and precautions apply, the general public is not likely to be subjected to unacceptable RF levels.

AMATEUR ASPECTS

Looking particularly to the personal safety of amateurs as a group, only a few situations are likely to require special care and attention, provided occupational RF levels and short term exposures are assumed. These will be confined to near-field situations (for example within half a wavelength of a half-wave dipole). Within such volumes, practical measurements at any point must include values of electric and magnetic fields — requiring sophisticated equipment and measurement techniques. Furthermore, the space impedance cannot be assumed constant and therefore simple mathematical conversion from power density to equivalent electric field strength to equivalent magnetic field strength are not valid. However when at least semi-quantitative allowances are applied it can be shown that only a few amateur situations require special attention.

Despite the fact that the typical hand-held equipments have been excluded from this standard, commonsense precautions should always be taken to minimise irradiation of the head and particularly the eyes. Care should be taken with mobile equipment antennas, which should not be approached or handled when radiating. Where there is no alternative to the adjustment of live antennas of any type, use the absolute minimum power input to them. Do not drape wire antennas along dividing fences even if it is only to guard against RF burns to the unwary.

LIFE OF THE STANDARD

It should be reiterated that medical knowledge of the effects of RF radiation on the human body is still incomplete. Even though this Standard is based on the very best information at present available, it is intended that it should have a limited life and will be reviewed within three years *"on the basis of evidence gained during its application and from research on the subject which is now world-wide"*.

THE "ALARA" PRINCIPLE

There is of course no guarantee that the levels set at present are **absolutely** safe in all situations. As a consequence the ALARA, principle, (As Low As Reasonably Achievable) should always apply in exposure to RF fields. Discussing this situation at the recent SAA Symposium on RF Hazards, Dr D Hollway, Honorary Research Fellow of CSIRO quoted a most appropriate analogy used by a US expert working in this area. When criticising the present ANSI (US) standard on RF Safety Levels, Professor N H Steneck, stated: *"The assumption is made that when one is walking along the edge of a potentially dangerous cliff, the best way to keep from falling is to know exactly where the edge is. Theoretically, if all the twists and turns were properly plotted one would not fall. (It is difficult not to point out in this regard that one could also avoid falling by not walking so close to the edge)"*.

AR

MAKE THIS JOTA SPECIAL!!!

1985 has been declared International Youth Year by the United Nations. Scouts and Guides have been involved in many special activities related to the Year's theme of "Participation, Development, Peace". Yet every year is a youth year for Scouting and Guiding. There are more than 25 million Scouts and Guides in over 150 countries.

JOTA is the largest gathering of Scouts and Guides and also amateur radio. Each year some 300,000 participate in more than 100 countries.

Let us make 1985 extra special and involve age (the WIA's 75th Anniversary) with youth (the International Youth Year) to make this year's JOTA bigger and better than ever. Participation is the answer on 19-20th October 1985.

This year the Institute is providing the QSL cards for JOTA and the 75th Sub-Committee have settled on a design that incorporates the Boomerang gate at Clifford Park, Wonga Park, Victoria.

The reason for this choice was, in 1955 the Institute's Official Station, VK3WIA operated 24 hours a day for the duration of the Pan-Pacific Jamboree - the forerunner of JOTA in Australia and perhaps the world.

From information from the Official World Scout Bureau and the Federal Office of the WIA.

AR

ENHANCED VHF/UHF SIGNAL LEVELS DUE TO AIRCRAFT

Gordon McDonald VK2ZAB,
59 Wideview Road, Berowra Heights, NSW. 2082

The anomalous propagation frequently observed on 2 metres and 70 centimetres during Sydney to Melbourne and Canberra to Melbourne contacts was comprehensively described by Doug VK3UM in his article "Aircraft Enhancement of VHF/UHF Signals" in July AR. The fact that enhancement does occur and that it is caused by aircraft is beyond dispute. This article is concerned with how the aircraft does it.

SPECULATION

When strange phenomena are first observed, logical observers will seek to determine whether or not their observations can be adequately explained by known facts.

In the case of Aircraft Enhancement this process was started but received an early setback coincident with an on-air remark (by me I think) to the effect that the levels of signals received could not be accounted for by known radar echoes from the aircraft involved. This either triggered or at least marked the start of a period of speculation about what might cause the signals to be so strong if it wasn't reflections from the aircraft itself.

Hypotheses concerned with possible refraction or scattering from gases ionised by the jet's exhaust or from turbulence in the aircraft's wake or from mini temperature inversions caused by the heat of the exhaust have all been heard. Some of these speculations have been accepted as facts by some amateurs.

The possibility that some truth might lie in some of these ideas cannot be discounted but nevertheless this article shows that the fundamental mechanism of aircraft enhancement lies in reflections from the aircraft itself.

THE AIRCRAFT AS A REFLECTOR

Radar echo calculations are based on an isotropic reflecting sphere of that size which gives the same signal at the radar receiver as the target being considered. An isotropic reflecting sphere scatters an oncoming beam uniformly in all directions and therefore calculations based on this model will result in the erroneous conclusion that the signal level at a distant receiver is the same as that of the back-scattered signal at the radar receiver.

An aircraft is not an isotropic sphere. The large, substantially flat surfaces under the wings and tailplane reflect radio signals in a beam. The reflection efficiency is virtually 100 percent because of the low losses in the aluminium skin of the aircraft and the beam width is inversely proportional to the ratio of the flat area to the wavelength of the incident signal.

When the aircraft is in flight the flat undersides are parallel to the ground and so are in the right position to reflect our signals and thus provide enhanced levels at the receiver by reducing the path loss.

However, Figure 1 illustrates that the whole of the flat area cannot be seen from transmitting or receiving sites in general because of the angle of incidence, which will change as the aircraft's position changes relative to the sites. Furthermore, the undersides of the wings and tailplane are not entirely flat so a more accurate model will be realised if we delete the contribution of the tailplane and any other flat area. The effective area of our reflector will be given by:—

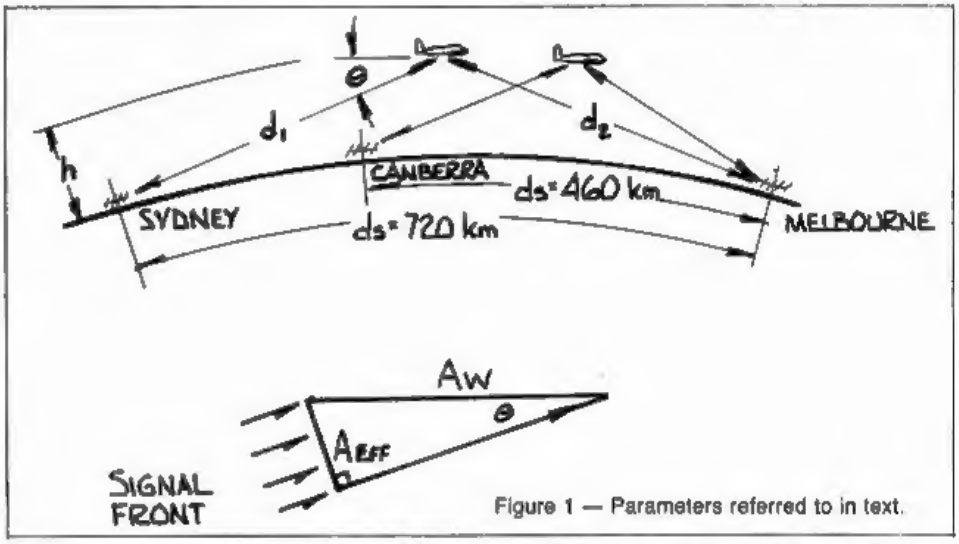


Figure 1 — Parameters referred to in text.

$$Aeff = Aw \sin \theta \quad (1)$$

Where:
Aw = *Area of Wings in square metres*
θ = *Angle of incidence*

The effective area has been calculated for various aircraft operating between Sydney and Melbourne assuming that the aircraft is stationary at its nominal operating altitude half way between Sydney and Melbourne and again half way between Canberra and Melbourne. In this case the angle of incidence is given by:—

$$\theta = 90\text{-}Tan^{-1}\left[\frac{r \times \sin(4.5ds \times 10^{-3})}{h}\right] \quad (2)$$

Where:
r = *Radius of Earth in km*
ds = *Distance between sites in km*
h = *Operating Altitude in km*

The distance from Melbourne to Sydney is taken as 720 km and from Melbourne to Canberra as 460 km for these calculations. Note that the angle of incidence is small, being less than 2° for all Sydney to Melbourne paths considered and from 2.5° to just over 3° for all Canberra to Melbourne paths.

The results are given in Table 1:

GAIN OF AIRCRAFT AS A REFLECTOR

As a reflector the aircraft behaves in the same way as two identical, back to back, antennas. Its gain, as an antenna, can be defined in the same way as the gain of any other antenna:—

$$G = \frac{4\pi A}{\lambda^2} \quad (3)$$

Where:
A = *The effective area*
λ = *Wavelengths in the same units*

Converting λ to frequency and expressing G in decibels we get:—

$$G_e = 20 \log f + 10 \log A - 38.55 \quad (4)$$

Where:
f = *Frequency in MHz*
A = *Effective Area in square metres*

This gain is realised when the reflecting aircraft receives the incident signal and when it retransmits it so that the total reflector gain is twice that given in equation 4. ie:—

$$Gr = 40 \log f + 20 \log A - 77.1 \quad (5)$$

Using this formula and the effective area from Table 1 the reflector gain on 432.2MHz of a 747 at 37,000 ft. half way between Canberra and Melbourne is 56.58dBi!

SPACE LOSS WITH AIRCRAFT AS REFLECTOR

Free space loss between isotropic antennas is:

$$Ls = \left[\frac{4\pi d}{\lambda}\right]^2 \quad (6)$$

Aircraft Type	Altitude (ft)	Wing Area (m^2)	Aeff (m^2) Syd/Melb	Aeff (m^2) Can/Melb
Airbus A310 200	33,000	219	6.116	9.565
Boeing 727 200	35,000	144.92	4.292	6.712
Boeing 747 200B	37,000	528.15	16.54	25.86
Mcd/D DC10	35,000	364.3	10.79	16.87
Boeing 767 200	40,000	283.3	9.59	14.99

TABLE 1 — See Text.

Aircraft Type	Lar (dB) Syd/Melb	Lar (dB) Can/Melb	SR (dBm) Syd/Melb 2 Metres	SR (dBm) Can/Melb 70 cm
Airbus A310 200	228.5	216.8	132.5 (S2)	– 113.1 (S5)
Boeing 727 200	231.6	219.9	– 135.6 (S1)	– 116.2 (S5)
Boeing 747 200B	219.9	208.2	– 123.9 (S3)	104.5 (S7)
Mcd/D DC10	223.6	211.9	– 127.6 (S3)	– 108.2 (S6)
Boeing 767 200	224.6	212.9	128.6 (S3)	– 109.2 (S6)

TABLE 2 — See Text.
NOTE: "S" Units are taken to the next lower place.

Converting λ *to frequency and expressing Ls in decibels we get*

$Ls = 32.44 + 20 \log f + 20 \log d$ (7)

Where.

f = *Frequency in MHz*
d = *Distance in km*

There are two "spaces" to be considered where we have a reflector in the middle of the path so taking the loss for each space from equation (7) and combining these with the reflector gain (5) we will get a formula for the space loss between isotropic antennas with an aircraft reflector in between i e

$Lar = 141.98 + 20 \log d_1 + 20 \log d_2 - 20 \log A$ (8)

Where.

d_1 = *Distance from site 1 to aircraft*
d_2 = *Distance from site 2 to aircraft*
A = *Aeff (Table 1)*

Note that the frequency factor has cancelled out because the increasing space loss with increasing frequency is exactly matched by the increasing gain of the reflector with frequency.

Lar's for the various aircraft considered are listed in Table 2

SIGNAL LEVELS VIA AIRCRAFT REFLECTIONS

The signal power at the receiver in dBm is:

$S_R = P_T + G_T - L_T + G_R - L_R - Lar$ (9)

Where:

P_T = *Transmitter power output in dBm*
G_T = *Gain of transmitting aerial in dBi*
L_T = *Transmitter feeder loss in dB*
G_R = *Gain of Receiver aerial in dBi*
L_R = *Receiver feeder loss in dB*
Lar = *Space loss via aircraft reflector in dB*

Examples:

1 I run 400 W PEP on 2 metres, my antenna gain is 20.65dB, feeder loss 0.65dB and there is a clear path from me to a Boeing 747 at 37,000 ft just east of Tumbarumba. I call CQ VK3 and Melbourne stations located in an area centred roughly on Dandenong and who have similar antenna gains and feeder losses along with a clear path to the same 747 must receive my signal at a peak level of

$S_R = 10 \log 400 \times 10^3 + 20.65 - 0.65 + 20.65 - 0.65 - 219.9$
$= -123.9$ *dBm*

which, assuming the "S" meters are calibrated according to the IARU standard for VHF/UHF is one dB short of S4.

2 Doug VK3UM runs 375 W PEP and about 28 dBi of antenna gain after deducting feeder losses on 432.2 MHz The same 747 as in example 1 has now arrived over Mitta Mitta still at 37,000 ft. A Canberra station equipped with 20 dBi of antenna gain after feeder losses and who has a clear path to the 747, as Doug has, will receive Doug's signal at

$S_R = 10 \log 375 \times 10^3 + 28 + 20 - 208.2$
$= 104.5$ *dBm*

which, on an IARU calibrated meter, is better than S7 peak.

3 If I had been listening on 432.2 MHz when the 747 was over Tumbarumba I would have heard Doug at – 115 dBm which is better than S5 and he would have heard my 10 Watts PEP at almost S3

The stations used in examples 1 and 2 are used for all examples listed in Table 2.

VARIATIONS FROM EXPECTED LEVELS

Variations can and do occur for a variety of reasons, some of which could be categorised as "normal" variations eg:

(a) The aircraft can be "seen" by the transmitting and receiving sites for periods up to several minutes either side of the time the aircraft reaches the centre of the path. However the signal level will vary over this period simply because the power density in the beam from the transmitter varies spatially, as it also does in the beam reflected by the aircraft.
This means that the length of time that the signals are enhanced will be decreased as the frequency increases even if the beam widths of the ground sites remained constant because the beam width of the reflected signal will get narrower as the ratio Aeff to λ increases.
Aircraft off to one side of the direct site to site path may expose a greater area of reflecting surface to both sites during banking turns. The signal levels will increase accordingly.

(b) Anomalous propagation other than aircraft enhancement occurs at some time almost every day. Ducting and subrefraction can trap or divert the beam from the transmitter or aircraft so that it is not intercepted by the aircraft or receiving site as "normally" expected. In Sydney, it has been observed that signals due to aircraft enhancement are either weak or not present at all during periods when signal levels are high over direct paths from Sydney to Canberra and Adaminaby indicating the presence of superrefraction.

(c) Perhaps the most obvious reason for variations lies in power outputs, antenna gains and particularly "S" meter calibrations not being what they are thought to be. It is not possible to come to any sensible assessment of path losses unless you know exactly what the fellow at the other end means when he says you are S4 or whatever.
The IARU has set a logical, absolute standard for "S" meters. It is that S9 is 5 microvolts input to the receiver at VHF/UHF 5 microvolts equals – 93 dBm for 50 ohms input and the "S" units are 6 dB apart. S4 then is –123 dBm input to your receive system — preamp in circuit or not.

MISCELLANEOUS THOUGHTS ON REFLECTIONS

There is no doubt that this mode of propagation will be evident at 1296 MHz and above, however the length of time that the signal will be available at a given receiving site will be quite short because the beam will be very narrow.

In the unlikely event that a signal is reflected from one aircraft to another before being intercepted by the ground station the path loss will be quite different. It will also decrease with increasing frequency.

Someone might like to derive a formula for the maximum distance which can be covered by aircraft reflections from say a 747 at 40,000 ft to give an S2 signal from a 400 W PEP transmitter with 20 dBi antennas at both ends

CONCLUSIONS

The signals received during Melbourne/Sydney and Melbourne/Canberra contacts on 2 metres and 70 cm can be accounted for by reference to the known effects of passive reflectors. The aircraft itself is a passive reflector.

Observations made by myself on 2 metre signals in Sydney correlate closely with the levels predicted in this article. My 70 cm observations did not correlate well with these predictions until the "S" meter was properly calibrated. Correlation is now close. In the case of observations made in Canberra and Melbourne any lack of correlation with the levels predicted in this article will have to be explained by the observers but I strongly recommend that they carefully consider the possibilities listed under the paragraph "Variations from Expected Levels" in this article

Acknowledgements:

Lance May VK2ZLM who acted as a sounding board for these ideas.
Doug McArthur VK3UM who started the ball rolling.
Ian Cowan VK1BG who cleared up a doubt relating to clearance angles from Canberra.

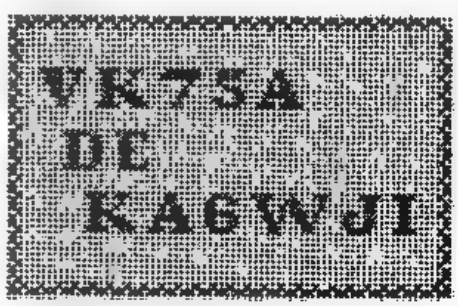
References:

1) ITT Handbook, Reference Data for Radio Engineers Chap 27 Chap 31
2) Antenna Engineering Handbook Jasik. Chap 13.
3) Microwave System Engineering Using Large Passive Reflectors Marvin L Norton. IRE Trans on Comms Systems Sept 1962
4) A practical guide to anomalous propagation. Microwaves and RF April, 1985
5) Observers Guide to Aircraft.
6) Radio Relay Systems Helmut Carl.

AR

VK7SA

Among the many cards received for contacts with VK7SA was this one from Nancy Dietrich KA6WJI of Santa Barbara, California. The front of the QSL is stitched very decoratively with embroidery



ADD ON MODIFICATIONS FOR THE SIEMENS TELEPRINTER

This is the third in a series. The last two were a 'shift indicator' and a 5 volt power supply. This article is about a simple counter circuit to show how far you are from the left hand margin: it's so much easier than counting in your head.

Peter Fraser VK3ZPF
52 Heathfield Rise, Box Hill North, Vic. 3129

A SPACE COUNTER

DESCRIPTION

The counter uses two seven segment LED displays to show numerically how far the typing basket has travelled. The circuit is a conventional counter which is clocked by a flip-flop de-bounce circuit. The counter is reset to zero when the carriage return is pressed or a 'CR' is received.

PARTS LIST

SW-A, SW-B	*(2) Miniature micro-switches.*
FND 500	*(2) 7 segment displays (common cathode).*
74C48	*(2)BCD decoder/driver IC.*
74C90	*(2) BCD counter IC*
4011	*(1) Quad 2 I/P nand gate IC*
470 ohms	*(14) Resistors (1/2 watt).*
12K ohms	*(3) Resistors (1/2 watt)*

You will also need two pieces of matrix board (one for the counter and the other for the displays), some ribbon cable and hook-up wire.

CONSTRUCTION

The parts should be put together in such a way as to take up the least amount of space. Just a word of explanation about the circuit diagram: the display shown on the left of the diagram is, in fact, the units display, while the display on the right is the tens display. The board is best mounted down on the right hand side (looking from the rear) of the machine base, under the motor. The screw hole near this location is tapped to accept 4BA screws. The board with the LED displays can be mounted on the left hand side of the platen on a strip of aluminium.

I suggest the use of IC sockets as the chips are all CMOS and don't like too much handling. When all sockets are wired together the board looks like a bird's nest, but if your nest is well kept it should work first time.

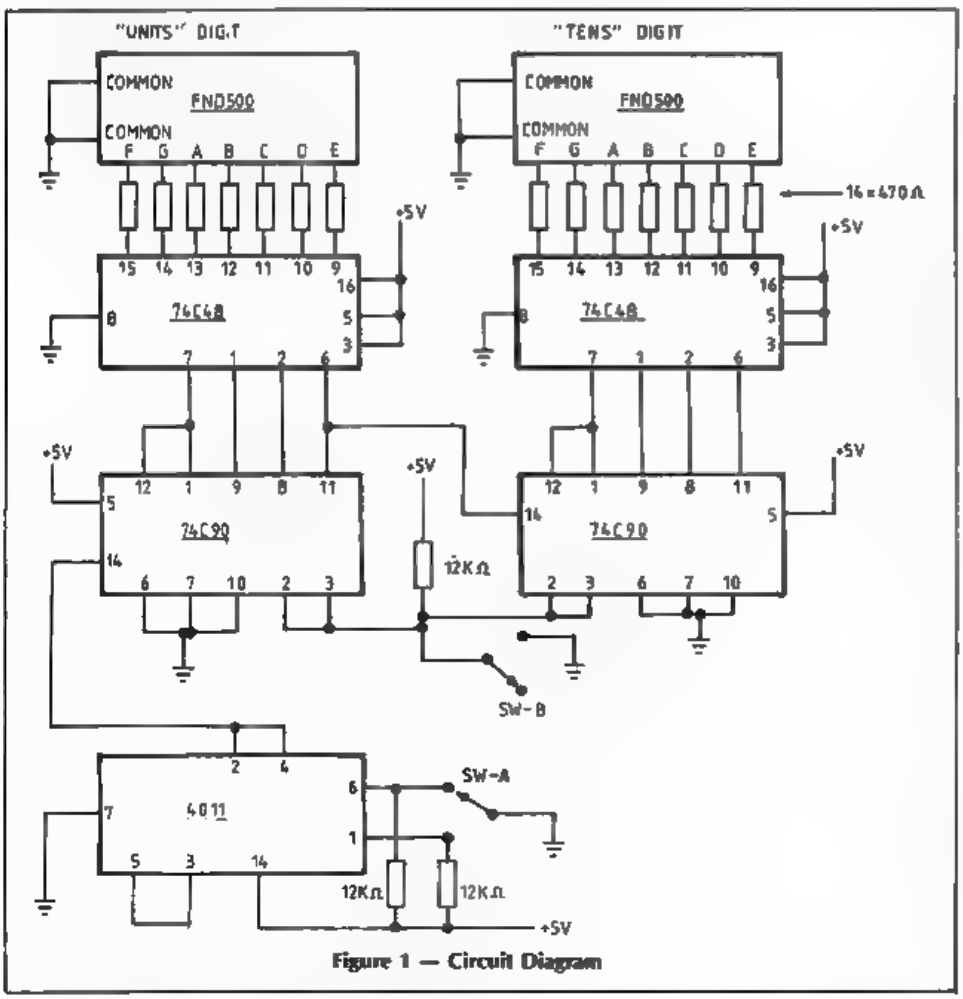


Figure 1 — Circuit Diagram

The 'count' switch (SW-A) is mounted on a right angled bracket screwed on so the switch is activated by the decagonal 'cog'. This is on the right hand side, in the middle of your machine (looking from the front), just behind the code bars. It's on the same shaft as the 'screw' which moves the typing basket along. The micro-switch is positioned so each time the carriage moves along one space, the switch closes, then re-opens ready for the next space.

Care should be taken so neither the bracket nor the switch foul the typing basket, as it means instant destruction of the switch. The two holes located near the 'cog' are tapped to 6BA and only 6BA screws should be used.

The 'reset' switch (SW-B) is located on the left hand side of the machine directly under the return spring. It's held on a 'L' shaped bracket arranged so, when a 'CR' is received, the switch opens then closes again. The hole provided is again tapped 6BA.

HOW IT WORKS

As the carriage moves along, the 'count' switch (SW-A) is switched from one state to the other. As the switch contacts come together they 'bounce'. To remove this bounce the 4011 is wired as a flip-flop. As the name implies, it 'flips' to one state (high) then 'flops' back to the other state (low). This 'pulse' is then used to 'clock' the 74C90 (units) counter. It's output is in the form of 'binary coded decimal' (BCD) and this is converted by the 74C48 to drive the seven segment displays. Each display has 7 dropping resistors (one for each segment). These resistors limit the current available to the light emitting diodes in the display.

When an '8' or '9' is displayed in the units column, pin 11 (74C90) goes high. When the 74C90 (units) is clocked over to '0', pin 11 of the 74C90 (units) goes low. This 'down going pulse' is connected to pin 14 of the second 74C90. This 'pulse' causes the 'tens' column to count 'one'.

When a 'CR' is received, pins 2 and 3 (74C90) are taken high then low again. This 'up going pulse' resets both counters to '00'. *Note: When installed 'SW-B' (reset) is held in its depressed position until a 'CR' is received; hence pins 2 and 3 (74C90) are normally low and go high on reset only.*

So that's the counter project and, although it seems complex, it is quite simple and any RTTY'er should have no trouble at all. This brings us to the end of the current series of projects, but don't put the soldering iron away yet, as the new year

may see some more interesting projects for you to have a go at

EDITOR'S NOTE

The transformer winding mentioned is used to provide power for a two colour option. Teleprinters with this option (very scarce) already have a bridge rectifier so will only require the voltage regulation. Small capacitors (0.1/UF) between ground and the regulator terminals, soldered to the regulator are advisable, to prevent oscillation

NB. Other windings on the transformer are not suitable for this power supply. **AR**

POSTAL SERVICE

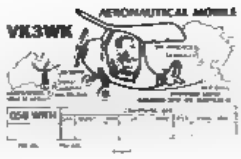
Did you know that the first recorded Postal Service was in operat on in the Chou Dynasty, China in 1100BC

The Romans in BC and AD had a highly deve oped Postal Serv ce (presumably by speed chariot) This was made possible by their penchant for building excellent metal sed roads and having plenty of mil tary manpower to deliver the mail and parce. bags

Greece, Egypt and Pers a also had planned mail serv ces

However, during the reign of King Richard II, the English developed the most highly efficient system of a l, using cour ers and messengers. In 1839, a competition was held to design an embossed envelope with an adhesive flap.

Contributed by Alan Shawsmith VK4SS **AR**



VK3WK AERONAUTICAL MOBILE FIGHTS OFF SHARK

Jim Linton VK3PC
VK3 DIVISIONAL PRESIDENT

A regular aircraft ferrying flight for Bill Bell VK3WK, nearly ended in tragedy when he struck fuel problems, forcing him to ditch a single engine plane, 300 nautical miles from Hawaii

The 50 year old pilot made front page news when plucked from the ocean, by helicopter, 11 hours and 40 minutes after the plane went down on 16th August

Bill said he became separated from the aircraft's liferaft and distress radio beacon and was left floating in a lifejacket

A shark about 2.5 metres long encircled him for at least three hours.

"I saw the shadow of the shark circling and the thing made a run at me.

"It was getting fairly excited about me and leapt out of the water. I kicked and slashed like crazy and it went away for a time," Bill said.

He had to keep alert and splashing, so the shark didn't get too close Bill said after describing the shark's colouring and the way it jumped, a shark expert confirmed the species to be Blue Fin.

A distress radio call was made by Bill before ditching the plane but, it was not picked up. The rescue authorities received a report of an emergency distress beacon and assuming it came from Bill's overdue plane, started a search.

An aircraft located the downed plane and two helicopters with para-jumpers arrived, thinking the pilot was trapped dead in the cockpit. Bill said the Coast Guard decided he was st l a ive and five aircraft started searching but, in the wrong area because the distress beacon had drifted

He said searchers later tried a different grid and spotted him waving.

A 'Jolly Green Giant' helicopter plucked him from the ocean and Bil was back on land three hours later

Bill, who makes regular tr ps across the Pacific for his company, said he would continue the trips, because it was like being thrown from a horse, you have to get back on

Lost with the plane was an IC-720 HF transceiver, home brew power supply, antenna coupler and an IC2A, two metre hand held

Bill can be heard signing VK3WK/aeronautical mobile on 20 and 40 metres during his trans-Pacific treks. **AR**

RICE COULD BE FUTURE SILICON SOURCE

Researchers in the US and Norway think rice husks may be a good materia from wh ch to make pure silicon, for chips and solar cells.

Rice husks are a by-product of rice refining ...the average cost is about $U520 per tonne.

Dr James Amick of Exxon in the USA says that although the process has not yet been perfected, it looks promising.

The husks contain carbon and s l ca and when heated in the correct proportions, they react to give silicon and carbon dioxide. **AR**

AUSSAT: An event in Australia's History

Ken McLachlan VK3AH
Box 39, Mooroo bark Vic 3138

More than a quarter of a century after the first satellite, Sputnik 1, was propelled into orbit by the USSR, followed by endless others including space missions, Australia now has its own telecommunications satellite.

Austral a a country with a land area of 7,830 000 square kilometres and a transcontinental distance approaching 4 000 kilometres, with a popu at on exceeding 15 6 million, has successfu y aunched the AUSSAT satellite K1 Due to be aunched on 24th August, the launch was aborted due to a thunderstorm in the vicinity of the Cape Canaveral launch site, when the countdown was w thin five, tantilising minutes of lift-off Th s caused much na l-b t ng to the management and staff of the mission, including the General Manager of AUSSAT Pty Ltd, Mr Graham Gosewinckel, who imperturbably stated on a direct television report of the launch, 'that it was a milestone in Australia's history and a delay of 24 hours for a successful launch was infinitesimal to the period of, in excess of the seven years it would be in orbit and the service to the community it would bring' Graham, and his staff, were overwhelmed by the number of telegrams bestowing good wishes, that had been received, including one from the former Minister of Communications Mr Tony Staley, n whose government it had been naugurated to those from the Prime M nister of Australia Mr Bob Hawke, Mr Michael Duffy, present Minister for Communications, and the general publ c

Unfortunately the second attempt, on 25th, was not without tr bulation, as again, th s time at nine minutes before scheduled l ft-off, n a very narrow window of time a back-up flight computer fault deve oped and t was impracticable to repair or reprogramme another back-up computer This history mak ng event, for Australia had to await yet another day

On 26th August, weather cond t ons again were to haunt a successful launch and with the 'window' narrowing, tomorrow was to be another day AUSSAT was now programmed for l ft-off at 1055JTC on the 27th, with weather forecasts being less than optim st c

K1 was sent nto space five minutes late, after a near copybook countdown, from Cape Canaveral, 50 km north of Melbourne, Flor da At last A RBORNE!

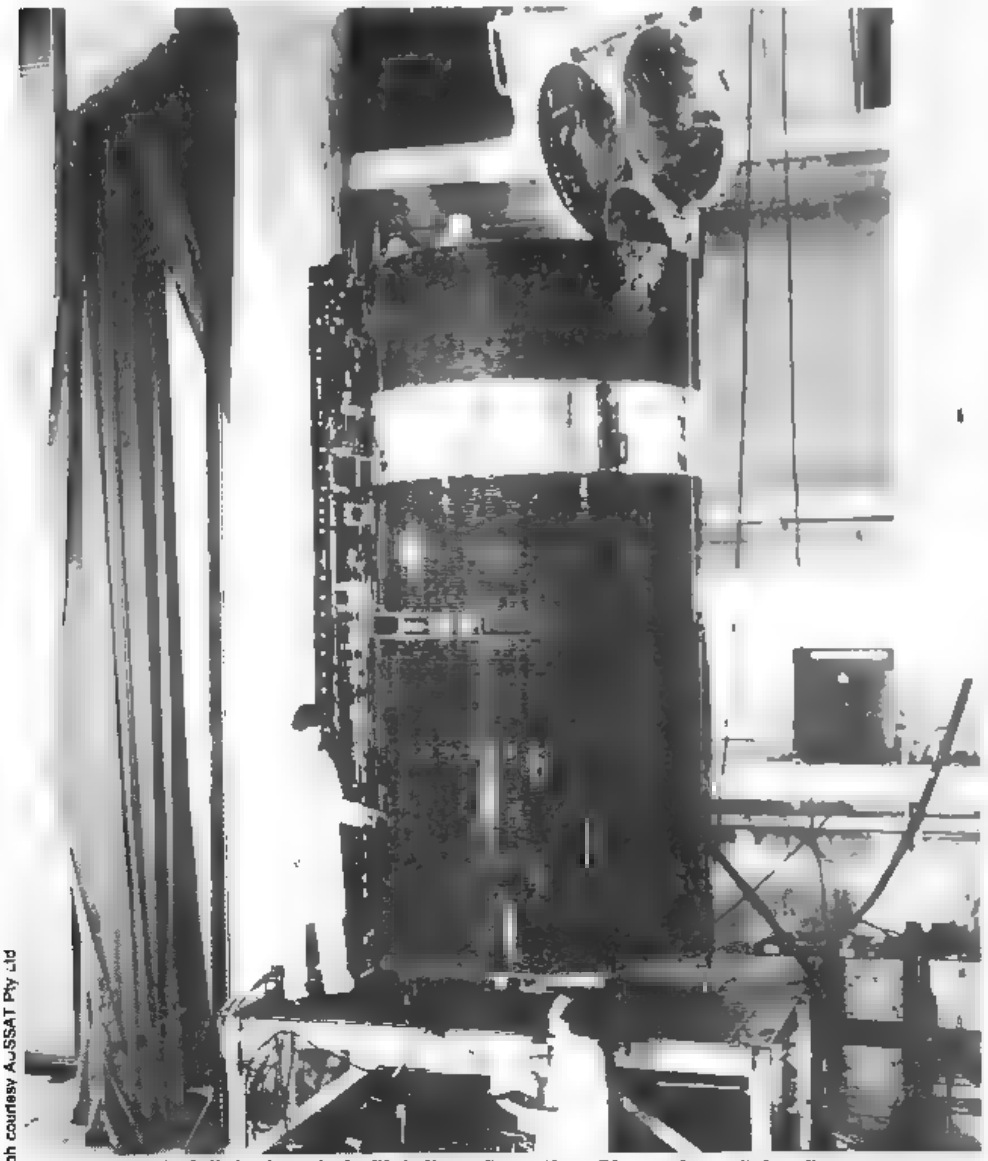
After discharge with two other satellites from 'Discovery' that had to be propelled nto space enroute and a specif c trajectory due to its ma n purpose of making a rendezvous w th the disabled satellite Syncon' worth, in excess of, one hundred and twenty million dollars and the duty of reclaiming it from space due to its unusua orbit, hence the 'narrow w ndow' Within hours of lift-off, K1 was ejected into space

Deploying K1 into its 'resting place above the Equator was in the hands of the contro stat on in Sydney, for manoeuvreing t nto posit on No mean task, but the sma l close knit group of some 268 AUSSAT employees, compris ng scientists engineers and adm nistration staff scattered across Austra ia, had the know-how and back-up assistance from previous launches, in other countries, and their experiences, to put it in the correct ocat on

AUSSAT K1, next month w ll be jo ned by a companion, K2, and a third in June or July, next year, which will be aunched by the European Space Agency launcher, Ariane K1, 6 6 metres long and 2.2 metres n diameter, with an all up weight of 655 k lograms, was 'piggy-backed via the American spaceshuttle,'D scovery' and manoeuvred to hover 36 000km above the Equator by commands from the Sydney control centre By the t me you read this artic e, AUSSAT K1 will be operational

Australia since the middle of the 19th century, has kept abreast of technological advancement Alexander Graham Bell invented the telephone in 1876 and two years later t was introduced in this country

Presently, Austra ia can boast of the most modern terrestria based commun cation system in the world, particularly n the urban areas and this satelite network will br ng Austral a nto line



Photograph courtesy AUSSAT Pty Ltd

AUSSAT 1 in full deployed "in flight" configuration. Shows three dish reflector antenna systems. It measures 6.6 metres in height and 2.2 metres in diameter. In orbit mass is 650kg.

Photograph courtesy Ken McLachlan VK3AH

Mitsubishi 13 metre antenna, with 32 metre microwave tower for customer links in the background.

with space age technology, also increasing our communication effectiveness, through diversity.

Purported by many to have cost in excess of four hundred million dollars which has been funded by the Australian Government, Telecom and loans from private enterprise, this satellite has created a tremendous potential in communication to cover our vast and massive land mass.

The purposes that the satellite can be used for are endless and it is not restricted to providing a direct broadcasting and television service coverage to all states, the Northern Territory and the surrounding peripheral surrounding coastline including such islands as Norfolk and Lord Howe.

It will provide greater access for such organisations as the 'School of the Air', presently being mainly dependant on the Royal Flying Doctor Service frequencies, provide telephone links to very remote areas that it was previously impossible to service due to economics and in the case of a failure of present terrestrial links in the unfortunate case of a natural disaster, mobile transceivers will be available to use the celestial communication link to various land stations scattered across the continent.

Provision has been made for numerous channels, which will be used by the Australian Broadcasting Corporation, commercial radio and media outlets, Telecom for updating and backing-up the present network, police and military for transfer of important data and the business community at large, such as banks, large retail stores and mining interests. A further enhancement to our already outstanding air traffic control effectiveness will be made, with the installation of 200 satellite ground stations for use in the control of flights above 3000 metres. The untapped potential of this celestial wonder, with an expected life of seven years is, as yet, to be realised.

It is interesting to note that the communication licence for K1 is $62 000 and K2 and 3 will attract similar revenue to the Department of Communications. The AUSSAT account for the earth stations is expected to be in the vicinity of $125.000. Quite a licence fee per annum, when compared with the amateurs fee.

TECHNICAL DATA

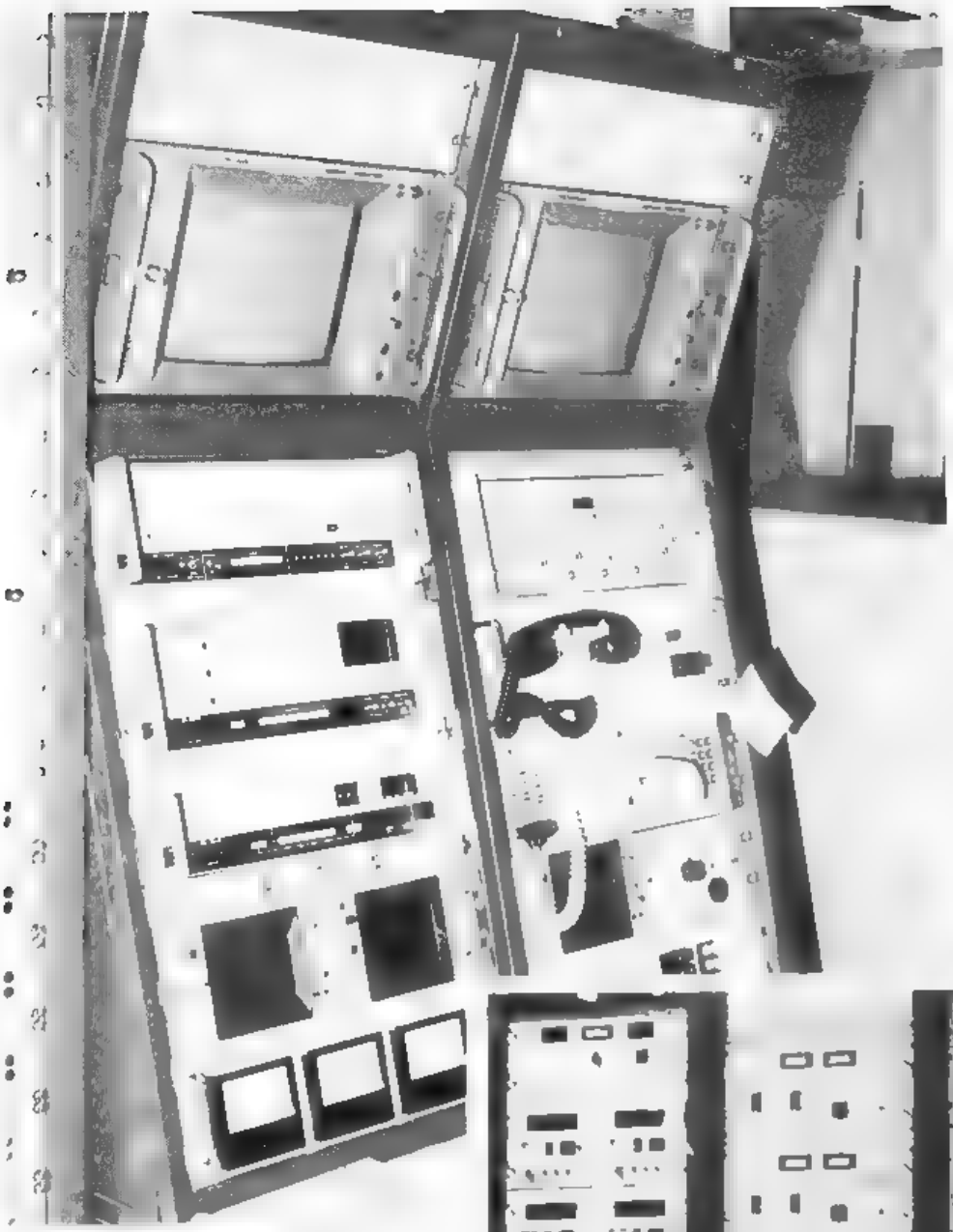
Initially, the two communication satellites will be in a geostationary orbit of 156 and 164 degrees east. The third satellite, when launched next year, will be located into an orbital position of 160 degrees. The primary satellite control, monitoring and communications centre is located in Sydney, with a back-up, with similar facilities in Perth. Major earth stations are located in all state capital cities, including Canberra, Darwin and numerous smaller user-owned earth stations dotted around the continent, to cater for a wide range of communication services.

The uplink and downlink frequencies are 14 to 14.5 and 12.25 to 12.75GHz respectively with channel capacities of 11 by 12W and 4 by 30W transmitters, with a bandwidth of 45MHz. Many configurations can be used with the satellite antennas and the DCrwin and Brisbane dishes are 18 metres in diameter to the other major cities installations of 13 metre diameter antennas. The B-MAC (Multi-Plexed Analogue Component, Type B) system has been chosen because of several significant advantages, which include high-fi-gh quality television reception, six digital sound channels, a data channe and more reliable reception under adverse weather conditions.

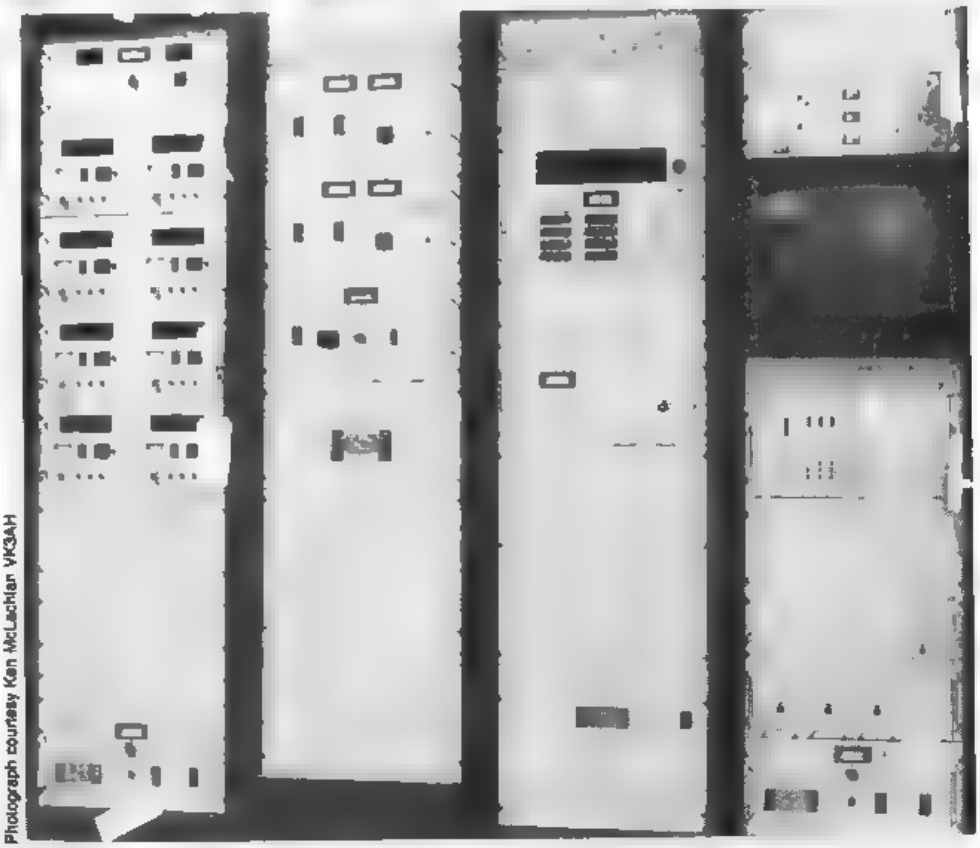
It is interesting to note from a comprehensive table that has been published by AUSSAT Pty

Photograph courtesy AUSSAT Pty Ltd

Main AUSSAT Satellite Control Centre in Sydney. 14.2 metre full tracking antenna, 2, 13 metre communication antennas with 40 metre microwave link tower. This will provide mission control and full satellite tracking, monitoring and control facilities.



Photograph courtesy Ken McLachlan VK3AH



Photograph courtesy Ken McLachlan VK3AH

Above: Broadcast Performance Programme Monitoring System.
Right: From left, EIRP Control Rack, Thyristor Leonard Set, Antenna Control Rack and LNA/HPA Control Rack.

win, with Brisbane second, win the dB attenuation stakes with as, at times as much as 13dB, Hobart gaining the 'wooden spoon' with a mere maximum of 2dB. For being in the winning stakes, they have received a larger antenna.

It has been stated that it will be an easy handyman project to orientate a small homestead type dish of about one and a half metres in diameter, to receive the satellite transmissions, by the use of a magnetic compass and a data sheet which will include an azimuth chart that will be supplied, when the equipment is purchased. It only remains for fine tuning of the antenna for the best reception.

DETECTION

Under full computer control from Sydney and data collected by other stations, traffic usage will be determined and controlled. This data will be a valuable tool for determining the type of traffic Ltd, of the attenuation caused by rain on the various cities at various times of the year. Darand effectiveness and will be used as a guide in determining the parameters of the system, when the necessity of updating occurs, on which planning has already begun. Also, it will instantly detect unauthorised use and unwanted interference and pin point its source.

To radio amateurs, satellite communication is not new, as within four years of the Sputnik launch, they built and had launched a system that has been continually updated which has allowed followers of the facet of the hobby to contact amateurs in other countries across the world. From these contacts, information has been gained that has assisted the state-of-the-art technology we are enjoying today.

Philatelic collectors will be delighted, as Australia Post are planning to release a special commemorative stamp early next year with a design based around the satellite. A must for all enthusiasts!

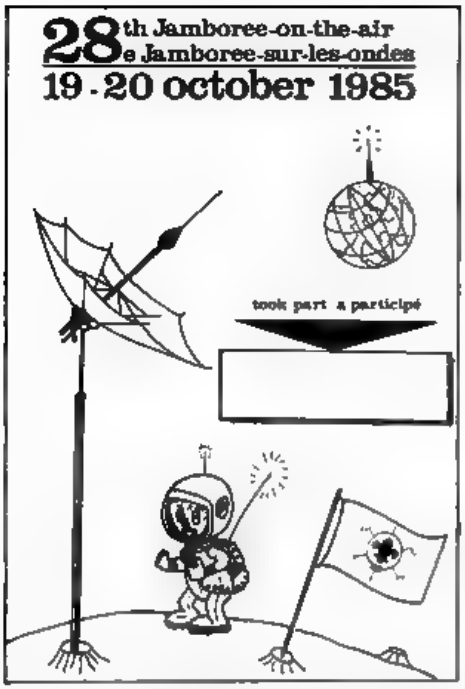
It is felt fitting that AUSSAT K1, has been launched during the 75th Anniversary of the first radio society in the world, the Wireless Institute of Australia, of which I am proud to be a member.

ACKNOWLEDGEMENTS

Sincere thanks are extended to the staff of AUSSAT Pty Ltd particularly to Mr Robert Loane Marketing Manager, Mrs Helen McLennan, Ms Jenny Lin, Messrs Kerry Carney and Roger Donnelly for their co-operation. Also to the staff of the Australian Bureau of Statistics (Melbourne) in their assistance with the preparation of this article.

AR

At the time of going to press, the talented crew in Bellvue said that the deployment of the antennas and solar panels was the smoothest operation of its kind ever accomplished.
Amateurs are invited to listen to the beacon and telemetry signals on the frequencies of 12.74875 and 12.74975GHz.
Congratulations to all concerned.



WIA, 75th ANNIVERSARY AND 28th JOTA — LET'S MAKE THE BANDS ALIVE IN 1985

Peter Hughes VK6HU
NATIONAL CO-ORDINATOR FOR JOTA
58 Preston Street, Como, WA, 6152

The Wireless Institute of Ausralia will, this year, promote their seventy fifth anniversary, through QSL cards supplied for use by stations participating in Jamboree on the Air. Where-as, there has been enormous support from the Institute in 28 years of encouragement to Scouts and Guides and their Leaders and Organisers to participate and in promotion to radio amateurs to make it all possible, in this special year for the Institute, the Scout and Guide Movements are proud to assist in this promotion.

Amateurs who have not been previously involved may be interested in the following information Even the 'old hands' may appreciate a refresher

JOTA is not a contest but is a lot of fun, being one weekend in the year when radio amateurs world wide invite Scouts and Guides to participate with them to talk to others around the world, across the continent or just 'over the back fence'.

The third full weekend in October is fixed for JOTA by international agreement between the IARU and Scout World Bureau in Geneva. This avoids any conflict for the airways, between the eager young voices and a possible contest.

In 1985 JOTA starts at 0001 hours LOCAL TIME (EVERYWHERE) on Saturday, 19th October and continues to 2400 hours on Sunday, 20th October, with the amateur fitting in whatever time is possible and convenient.

The youngsters can be fascinated by your explanation of how JOTA starts at midnight on the dateline in places like ZL and 3D2, progressing west through VK1/2/3/4/7 to VK5/8 and VK6, then onwards through ZS, etc.

They can also be educated on Great Circle (shortest distance and Delta navigation) Beam Headings and the difference between various maps — particularly Mercator versus a Globe (try beam heading to South America)

There are no rules. Amateurs can operate within any condition of their licences — any band, any mode Be ready for the situation wherein, unlike Australia, Scouts and Guides are not allowed to speak on the microphone in some countries. A special type of 'relayed' contact is needed for these people

To facilitate contacts, World Scout calling frequencies are recommended, with the expectation that stations QSY after contact is established. As we know, this system can lead to disappointment through a contact being 'lost' on changing frequency so, perhaps it would be more effective to listen or call "CQ Jamboree" at the edge of the contacts near these frequencies

Please note, VK participation is traditionally highest or second in the world and for many years we have been asked to 'leave a gap' between overs for DX stations as they tell us they can often hear us but are unable to break in It has been agreed that, except by special arrangement, metropolitan repeaters are not used for JOTA, as they were installed for mobile communication. Two metres simplex is generally very popular because of clarity, in spite of the lack of DX

BAND Metres	CW Frequency/MHz	SSB Frequency/MHz
80	3.530	3.590 (in VK)
40	7.030	
20	14.090	14.290 (DX)
		14.190 (VK)
15	21.140	21.360 (DX)
		21.190 (VK)
10	28.190	28.990

Frequency Table

The Official Opening Ceremony will be broadcast, as in recent years, from Government House, Yarralumla, over VK1BP which will be operated by members of the RNARS, with VK6HU as Master of Ceremonies.

Their Excellencies, the Chief Scout and Chief Guide of Australia, will be supported by the Chief Commissioners for Scout and Guides.

This Broadcast commences at 0400UTC (or as near as possible), on 21.190, 14.190 and 7 090MHz simultaneously and will be followed by a call back, to enable the dignatories to talk with some of the participating stations.

It would be appreciated if stations could keep these frequencies clear from 0345UTC, to enable propagation checks to be made, mainly with the assistance of Branch Official Stations. If you are looking for them during JOTA, they are generally VK.SAA and VK.GGA, but VK5BP and VK6SH are still current and the Northern Territory uses VK8SBP

Some Branches also have their own Official Broadcast

VK5 by courtesy of the WIA in the Sunday Broadcast at 2330UTC

VK6SAA at 1200UTC, Saturday 19th October on 3.590MHz

VK6WV at 1130UTC, Saturday 19th October on 3.590MHz (for NW stations).

VK6SAA at 0800UTC, Saturday 19th October . rebroadcast of speeches from Canberra on two metres Channel 8, 7.090 and 21 190MHz.

Logs and Reports are the responsibility of the Scout and/or Guide Leaders but, help or verification of the contacts could be appreciated. These sheets are in no way intended to replace any station log.

VK5BP will be on air on the four Sundays prior to JOTA from 0130 to 0600UTC for enquiries and demonstrations and would no doubt appreciate some contacts.

VK2SAA will be active from late December to mid January 1986, from the site of the 14th Australian Jamboree at Cataract Park, near Wollongong, south of Sydney. Contacts during this time will be very important to demonstrate amateur radio in association with workshops, an AM broadcast band station and displays.

Opportunity s being taken to hold the Third National Conference of Scout JOTA Organisers and Guider Liaisons during the Jamboree

On behalf of all Scouts and Guides, I take this opportunity to sincerely thank the WIA and all amateurs who make this exciting international event possible

AR

QSL CARDS TO AND FROM THE USSR

It is common knowledge that cards from Russian amateurs take, very often, a long time to come through. This is not the fault of the WIA Inwards Bureaus.

The main reason is that most Russians do QSL and almost 100 percent of those cards come through the outwards bureau in Moscow

Of late, the cards appear to be coming through reasonably quickly, only taking six months to a year or so. A few years ago, the time would have been two, three or even four years.

Has Box 88 become more effic ent? No! Because of the present poor conditions due to the state of the ionosphere, there are not so many opportunities for the Russian stations to work DX. hence less QSL cards Less cards means that the bureau people have been able to catch up on the back-log.

No doubt things have improved n the other direction too. Sorting cards sent to Box 88 would not be the mammoth task that it was when conditions were good

Do you respond to listener reports from the USSR or do you throw them in the WPB?

Russian SWL cards probably outnumber a l SWL cards received from other countries. There s a reason. Before an aspiring amateur can make application for a licence, he or she must become a SWL and collect the prescribed number of foreign QSL cards.

So, next time you receive a Russian SWL card, give a thought to Vlad or Serge or Alex, spending hours over the receiver, listening to you talking to your heart's content and wishing that he could join you Your card may be just the one he needs.

From QTC, Aug 1985

HISTORY OF JAMBOREE ON THE AIR

Maxwell Hull VK3ZS
FEDERAL HISTORIAN
PO Box 300, Caulfield South, Vic 3162

Lord Robert Stephenson Smyth Baden-Powell was a British General, born in 1857. He took part in the operations in Zululand in 1888, and in 1895, was sent on special service to Ashanti. In the expedition against King Prempeh, conducted by Sir Francis Scott, he was given command of the native levies whom he turned into splendid fighting material. During 1896-7, he was Chief Staff-Officer in South Africa, and took part in the campaign against the Matabili. On the outbreak of the Boer War in 1899, he was given the command of the small force in Mafeking. Although surrounded by a greatly superior body of Boers in the very early stages of the war, 14th October 1899, he, in spite of a close investment of determined assaults, and of starvation rations kept the flag flying until the siege was raised by Mahon and Plumer on 17th-18th May 1900. Baden-Powel then organised the South African constabulary and from 1900-3 was Inspector of the Transvaal police.

In 1903 he became Inspector of Cavalry. He founded the organisation of Boy Scouts in 1908, to promote good citizenship in the rising generation, and to educate boys by means which really appealed to them — namely, scouting and back-woodmanship. In order to devote his time to this work, he retired from the army in 1910. In 1909 he received a knighthood. He was the author of Reconnaisance and Scouting, 1890, Cavalry Instruction, 1895, The downfall of Prempeh, 1896, The Matabele Campaign, 1896, Aids to Scouting, 1899, Sport in War, 1900, Scouting for Boys, 1908 and Sketches in Mafeking and East Africa, 1907. In 1929, he was given peerage and took the title, Lord Baden-Powell of Gilwell.

Photograph courtesy 'The Story of 25 Eventful Years in Pictures'

Lord Baden Powell, taken at his home in 1929, after he received a barony on 2nd August, for the work he had done for the youth of Great Britain and the whole world.

AMATEUR RADIO, SCOUTING AND GUIDING

Amateur radio, scouting and guiding have a similar philosophy — of spreading international friendship and goodwill throughout the world — of crossing borders of language and creed and of doing these things in a manner different to most other pursuits of mankind. It is a common link which exists between the amateur radio and scouting organisations of the world.

Photograph courtesy 'The Story of 25 Eventful Years in Pictures'

At the Scout Jamboree, Arrowe Park in 1929.

World scouting commenced at an experimental camp, organised by Lord Baden-Powell, on Brownsea Island, England, in August 1907. The principles of scouting, as identified by its founder were, 'that man should serve God, act in consideration of the needs of others, and to develop and use his abilities to the betterment of himself, his family and the community in which he lives'.

The 75th Anniversary of the movement was celebrated in 1982-3. This was also the 125th Anniversary of the birth of Lord Baden-Powell, fondly referred to as BP.

The word JAMBOREE means 'noisy revel, carousal or spree, especially a large gathering of Boy Scouts'. In Australia, the word CORROBOREE is often used, particularly when referring to an interstate gathering of Boy Scouts. Corroboree is an Australian aboriginal word which, by definition means 'an aboriginal assembly of sacred, festive, or warlike characters, any large or noisy gathering, a disturbance, an uproar'. From the inception of scouting, gatherings of Boy Scouts were identified by these terms.

The first world Jamboree was held at Olympia, London, in 1920. It was at this event that BP was acclaimed Chief Scout of the World. In the same year, the first International Scout Conference was held in London, from which the International Bureau, now World Bureau, was formed.

The first Australian Corroboree was held in Sydney in 1922. In the same year an International Committee was established. The largest Jamboree was held at Arrowe Park, near Birkenhead, England, on the 2nd July 1929, when 50,000 scouts from all over the world were in camp. On 1st August of the same year, Robert Baden-Powell was given a barony in recognition of 'the great work done for the youth of England and the whole world'.

The story is told how in 1910 a group of girls attended a rally at the Crystal Palace in England, dressed as Boy Scouts demanding to be included in the activities of scouting. It seems Robert Baden-Powell was not over-impressed with this representation in those days but nevertheless, could not see any reason why girls should not be involved in scouting. And so it was at his instigation, that his sister, Agnes Baden-Powell, formed the Girl Guide Movement in England, which officially commenced on the 1st May 1910. In Australia, the existing Red Cross Girls Aids and Girl Aids of Australia, were willingly absorbed into the Movement.

When scouts and guides meet together nationally and internationally the gathering is referred to as a JAMBORELLA. The first Australian Jamborella was held at Gilwell Park, Victoria during December/January 1978-9. The first international Jamborella was an Asia-Pacific event, held at Rossmoyne Park, Dandenong, Victoria during December/January 1984-5.

Scouting activities have always included 'signalling' but, until the postwar years of 1955-6, little interest appears to have been shown in 'wireless signalling'. The first known association of scouting and wireless was as early as 1912 when boys of the First Arundel Troop, in Sussex England, registered the call sign XBS and, after purchasing component parts at the A W Gamage Department Store in London, constructed and operated a Spark Transmitter. It was described as a 50 watt transmitter, powered by storage batteries and operating on the 200 metre band with a sending range of five miles (8km). The station was also licenced to use portable apparatus to operate within a five mile (8km) radius of its base transmitter. The troop's receiving apparatus was said to have a range of 800 miles (1287km).

There seems to be no further evidence of the Boy Scout Movement utilising wireless in its

general activities, other than the individual operation of licensed stations, whose owners were also in scouting until the Pan Pacific Jamboree held at Clifford Park, Wonga Park, Victoria, during December 1955 and January 1956. This was such a massive undertaking for its time and it deserves detailing for the sake of history.

VK3WIA AT WONGA PARK

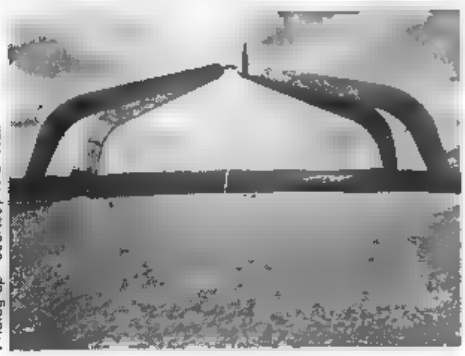
In November 1955, the Federal organisation of the WIA received a request from Mr Levi Molineux, Leader of the Fraternity Group of the Pan-Pacific Scout Jamboree Camp Committee, seeking the co-operation of the amateur radio movement to provide, as an additional amenity at the Jamboree, a complete amateur radio station in full operation, to enable scouts to see it working and hear signals from all parts of the world.

The then Federal Secretary, Doug Bowie VK3DU, with the approval of the Executive, offered the use of the WIA Federal Station, VK3WIA, which was readily accepted. There was not a lot of time in which to organise such a project.

At that time, VK3WIA was operated from the home station of Major Bill Mitchell VK3UM, who was Federal President and Manager of the Federal Traffic Net. His station, like many of the postwar rigs, was substantially 'home brew' from disposals equipment. It was not exactly transportable. A decision was therefore made to seek the assistance of the defence services and the radio industry, in setting up a station. The result was beyond expectation!

First, a request was made for VK3WIA to operate at the Clifford Park camp site at Wonga Park using a power of 500 watts, and this was granted by the Wireless Branch of the Postmaster General's Department. The installation was inspected by Mr Joe Dobbyn, Superintendent of Wireless (Victoria) and Mr Alf Avard from the same office.

To operate with this power, two Type AT20 transmitters with 50 kVA petrol driven motor alternators supplying 240 VAC, were obtained from the RAAF. The location of the station was on Headquarters Hill, the name given to a raised knob of terrain, just to the right, inside the main entrance, overlooking the Sound Shell and main amenities area. The entrance was composed of four huge boomerangs forming an arch and was featured in the design of the special QSL card, to be sent to all those operators who contacted VK3WIA.



Photograph courtesy W.L. Hull

Erected many weeks before the commencement of the campsite installations, this impressive formation of four boomerangs formed the entrance to the Clifford Park Jamboree site. VK3WIA operated from the site for the 10 days of the Jamboree.

The Jamboree Committee provided a large marquee complete with wooden floor, in which to house the transmitters and operations area. A decent 'blow' during the early days of setting up the campsite brought the marquee to the ground. During its re-erection, the opportunity was taken to re-lay the flooring at more convenient levels. A timber and sisalkraft shelter, erected by a troop of Sea Scouts, housed the 240 VAC motor generators. Sleeping quarters were normal scouting tents, provided by the Jamboree Committee.

The two transmitters were connected for switching to any one of six directional (four wavelengths per leg) V beams, suspended from a central 75 feet (23m) metal pole. This was supplied and erected on Headquarters Hill by personnel from the Royal Army Signals Corps, at Balcombe, Victoria. Six 30 feet (9m) collapsible masts, loaned by the RAAF, were set up on the perimeter of Headquarters Hill by WIA personnel, who also completed the audio, feedline, antenna switching and power wiring, for the entire installation. The transmitters were operated on 80, 40 and 20 metres.

900 yards (823m) of 7/20 bare copper wire used in the installation, was donated by the British General Electric Company Pty Ltd, Glorad Engineering Services Pty Ltd, Johnson & Phillips Pty Ltd and O H O'Brien Pty Ltd. Several hundred insulators, of various kinds, were donated by Nilsen Porcelain Pty Ltd, Australian Electrical Industries (AEI) Pty Ltd and R H Cunningham Pty Ltd. 400 yards (366m) of steel guy wire was provided by ARC Engineering Co Pty Ltd and 150 yards (136m) of rope halyard from Glorad Engineering Services Pty Ltd, the latter company also supplied control equipment, 80 feeder spreaders, power distribution boards, relay power supply and test equipment. Antenna change over relays were supplied by Ham Supplies.

Fuel and oil, for the motor driven alternators, were delivered, on site, by the Vacuum Oil Company, paid for by donations from Ampol (Alba) Petroleum Pty Ltd, Caltex Oil (Australia) Pty Ltd, Commonwealth Oil Refineries Ltd and the Vacuum Oil Company Pty Ltd. The surplus was sold to the Jamboree Committee.

A four channel audio mixer, on loan from the Australian Broadcasting Commission, provided means by which, important addresses from the main sound shell could be mixed with local announcers' voices for transmission at appropriate times.

Despite the short notice, inclement weather part of the time and many frustrating technical problems associated with installing the equipment in difficult circumstances, the project was a success, from which many lessons were learned. VK3WIA operated for almost 24 hours per day over the 10 days of the Jamboree logging more than 480 contacts in 38 countries.

Scouts from all over the world flocked around the operations area, many of them being able to talk on the air to local, interstate and overseas amateurs. The scouting movement in Australia and overseas had been notified of the operation of the station and were looking for signals from the Australian Jamboree on the Air. From the WIA's point of view, the Clifford Park Jamboree was the first Jamboree on the Air ever held and sparked off the enthusiasm for encouraging amateur radio operators around the world to open their shack doors to the scouting fraternity.

The entire operation was carried out by a small team, namely: M Cameron VK3AC, George Glover VK3AG, R Jones VK3BG, Doug Bowie VK3DU, Jack Elton VK3JD, Reg Jepson VK3JI, Ray Jones VK3RJ, Bill Mitchell VK3UM, Ivor Stafford VK3XB, Fred Bail VK3YS, Lance Frith VK3ZA, Max Hull VK3ZS, Ken Seddon VK3ACS, Hans Albrecht VK3AHH, R Bailey VK3ZAQ, John McKenrick and Bob Darlington.

From left, James Yapp, Karam Singh, Ashkar Hasbollah and Max Hull VK3ZS, making contact with stations in North Borneo during Clifford Park Jamboree.

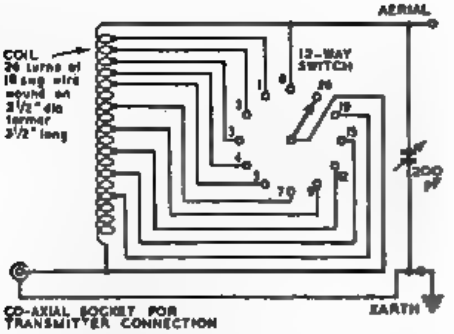


Figure 1 - Circuit Diagram of a the end fed Aerial Matching Unit.

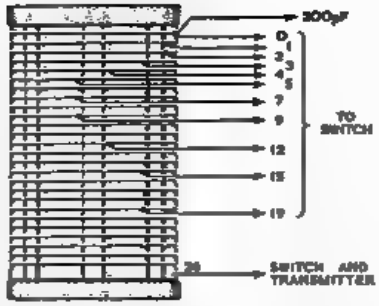


Figure 2 - Details of Coil and Tappings. The Coil is wound on an Eddystone Frequentite Former.

In August 1957, the year following the successful Australian venture, the Boy Scouts Association in England celebrated its Jubilee Jamboree. The event was the 'BP Centenary 1857-1957 Jamboree' at Sutton Park, Sutton Coldfield, celebrating 100 years since the birth of Robert Baden-Powell.

The British Postmaster General granted special facilities for the operation of an amateur radio station using the call sign GB3SP. It was permitted to operate simultaneously on more than one band, between 3.5 and 30MHz, and to transmit a News Service as well as conducting the normal activities associated with amateur station operation. The News Bulletins were transmitted 'on the hour' for approximately five minutes, from 1000 to 2200 GMT (UTC), with special radiations beamed to suit conditions and local times around the world, where possible.

The Federal Executive received notice of this event and recirculated the information to VKs through the pages of Amateur Radio and WIA Divisional Broadcasts. It was from this event the idea was born for all scouts operating on the amateur bands to nominate one day a year on which they would get together for a Jamboree on the Air - JOTA. Les Mitchell G3BHK who had been running scout radio camps in England since 1946, was given the job of organising JOTA. For its success it was seen as being necessary to invite amateurs throughout the world to take part, rather than confining the event to local licensed scout stations.

In November 1957, the idea was put to the test using a 40 watt AM transmitter, set up at a meeting held at Fielden, UK, at which local scouts attended. It was an outstanding success, with 63 contacts in some 30 countries being made in 24 hours. The rules were then drawn up for the first official JOTA in 1958 and it was officially listed as an annual scouting event. From 1959 JOTA became the responsibility of the Boy Scout World Bureau and this organisation annually circulated International Commissioners' Jamboree on the Air Organisers and Amateur Radio Organisations, with details of dates and times. The co-operation of amateur organisations was vital to ensure the continued success of JOTA.

The WIA played an important part in encouraging Australian amateurs to open their shacks for scouts to see amateur radio in operation. There was some apparent lack of interest in the early days, which has largely been overcome.

In 1963 the Australian Boy Scouts Association contacted the Federal Executive of the WIA, seeking the assistance of the Institute to again install and operate an amateur station at the forthcoming Seventh Australian Jamboree, to be held on the site of the Old Police Paddocks at Rowville, near Dandenong, Victoria, from 29th December 1964 to 11th January 1965. In making the request, the Association cited the success of the 1955-6 Jamboree and expressed the hope 'that the WIA could do it again'.

Jay Lancaster VK3JL, had taken over the office of Federal Secretary.

Almost a decade had passed since the Wonga Park operation and Jay knew little of what had gone into that event. With his typical efficiency however, he organised a committee composed of Bill Mitchell VK3UM, Max Hull VK3ZS, George Glover VK3AG and David Rankin VK3QV and advised the Scout Association that VK3WIA would operate at the Jamboree. This time the installation was a very much smaller and amateur like setup. Compact commercial rigs were appearing in the market place and the Executive had acquired a Geloso G222-TR Amplitude Modulated transmitter covering 3.5 to 30MHz in six bands, for use on its Federal Traffic Net, and this was pressed into service at the Rowville camp site. The simple antenna tuning unit, illustrated in Figure 1 and 2, coupled the transmitter to a random length end fed antenna.

A brief study was made of the sun spot cycle conditions which appeared favourable. VHF home brew equipment was therefore also installed, thus providing the scouts with a broad example of what amateur radio was all about.

Hundreds of contacts were made on all bands during the 10 days of the Jamboree, which this time enjoyed excellent weather. Due to circumstances, the bulk of the operating of the station fell in the lap of Bill Mitchell VK3UM and David Rankin VK3QV, who kept the station on air for many hours a day.

This was the last known activity of VK3WIA at Scout Jamborees. The WIA has, however, fostered the activity of JOTA and over the years, from the middle 60s until the present time, has seen a great deal of publicity and co-operation given to this event. Amateur Radio magazine has carried a number of front cover feature pictures of amateurs and scouts participating in JOTA. It has become one of the most important world wide events on the calendars of the scouting and amateur radio organisations.

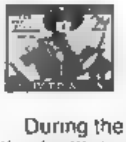
Many scouts today are licensed amateurs, who first gained interest in amateur radio through participating in JOTA.

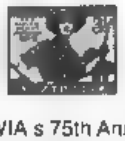
Lord Baden-Powell of Gilwell, passed away on 8th January 1941. From the humble beginnings of scouting in 1907, he saw world membership reach 1,019,205 in a 1922 census. Today the organisation of World Scouting boasts over 17 million scouts, around the world. BP visited Australia in 1912, 1931 and 1934.

Lady Olave Baden-Powell passed away on 26th June 1977, after a life of fulfilment, dedicated to her husband's cause and that of the Girl Guide Movement. She visited Australia on the occasion of the Diamond Jubilee Year of Scouting 1907-1967. A thanksgiving service was held on 30th April 1967, in Festival Hall Melbourne, at which a gathering of more than 6000 scouts and guides were addressed by Lady Baden-Powell. This address was recorded for posterity by the writer.

This year, 1985, celebrates the 75th Anniversary of Guiding in Australia. The Girl Guide Movement has a present membership of 100,000. Australia Post issued a 33 cent Pre-Stamped Envelope celebrating the event.

Pre-Stamped Envelopes and Commemorative Postage Stamps have been issued on several occasions, celebrating scouting events in Australia. A red 2 1/2d (3 cent) stamp depicting a scout was issued, together with a First Day Cover to celebrate the 1948-9 Pan Pacific 'Yarra Brae' Jamboree. A similar 3 1/2d (4 cents) stamp and First Day Cover were issued for the 1952-3 Pan Pacific Jamboree at Graystanes. The scout depicted on these two issues was the son of the then, Commonwealth Note Printing Branch Engraver, Mr Frank Manly. In 1979 a 20 cent First Day Cover was issued to celebrate the Fourth Asia Pacific (12th Australian) Scout Jamboree, in Perth. This Jamboree had a special importance, being the final event in an exciting year of sesquicentennial celebrations for Western Australia.





During the WIA's 75th Anniversary, it is again the Institute's pleasure to be associated with scouting and guiding for the October Jamboree on the Air. It looks forward to many more years of JOTA activity, in harmony with people who have such an affiliation with it.

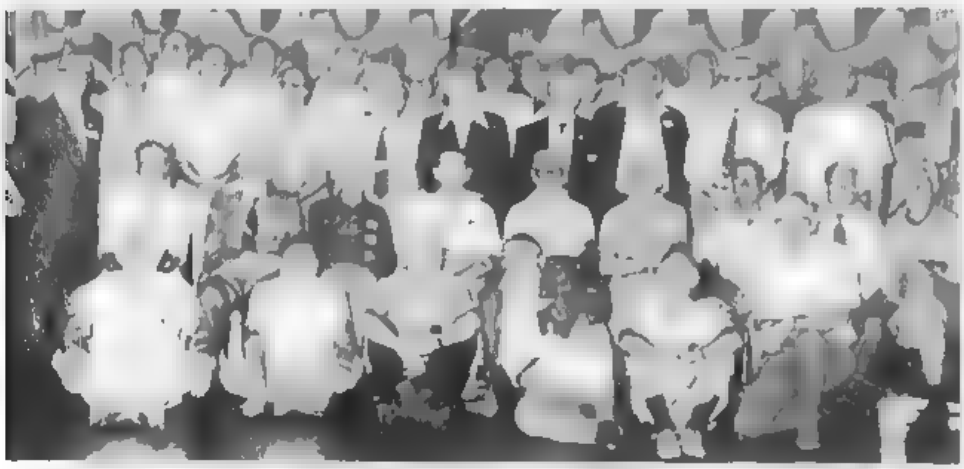
All VKs are cordially invited to participate in the 1985 28th Jamboree on the Air. JOTA is part of our history. AR

Radio Amateur Old Timers Club

QUEENSLAND'S SECOND ANNUAL LUNCHEON A SUCCESS

Bill Bentson VK4QF/W7QFY, advised that the Annual Luncheon of the Queensland RAOTC, held at the Coorparoo RSL Club on 28th April, was, again, a success, with 33 members present. Bill says they plan to have one every year, on the Sunday following ANZAC Day.

The VK4 boys donated $20 towards the cost of printing the RAOTC 'OTN Journal'. The Committee extends its thanks and appreciation. With the cheque was a photograph of the members at the luncheon.



Back row standing-Art Walz VK4AW, Malcolm Gray VK4ASU, Alan Taylor VK4BE, Keith Schleicher VK4KS, Roy Hildred VK4RE, Bill Stevens VK4YN, Bob Linskel VK4ALI, Stan West VK4RL, James Halyday VK4HZ, Stewart Smith VK4LA, John Atkinson VK4RZ, Ron Guttormsen VK4WY, Neville Jones VK4NJ, Ken Smith VK4KA, Ian Morrison VK4MO, Ernie Burnage VK4OG, Sam Weller VK4CZ, Herb Sprenger VK4ES.

Centre Row seated-Ernest Ginn VK4GE, Charlie O'Brien VK4NC, Ron Glassop VK4BG, Merv Wratten VK4MW, Norm Hart VK4KO, Al Carter VK4LT, Fred Lubach VK4RF, Eddy White VK4OW, Joe Ellis VK4AGL.

Front row-Bill Benison VK4QF, John Pardon VK4PU, Ken Ayers VK4KD, Cress Everdell VK4ZAO, Ced Marley VK4CJ and Claud Singleton VK4UX.

Ron VK4BC, John VK4RZ, Norm VK4KO and Art VK4AW have been licensed for over 50 years. Congratulations, OMs.

HOW TO JOIN THE RAOTC

Eligibility for membership is available to amateurs who have held, or been qualified to hold an amateur licence for a period of 25 years, or more.

Its objects are to maintain interest and fellowship among the older licensed amateurs. It is affiliated with the Wireless Institute of Australia.

The joining fee is $15 ($20 overseas applicants), which should be submitted to the Secretary, Harry Cliff VK3HC, PO Box 50, Point Lonsdale, Vic. 3225, together with the date of your original licence, operator's certificate number, original call sign or qualification held and present call sign, if original not now held.

An application form is available from the Secretary at the above address. It is required to be signed by a proposer and seconder, who are already members of RAOTC.

Membership is only paid once! It entitles members to participate in all RAOTC on air nets, social functions and a copy of the Club's journal 'OTN'. Members also receive a Club badge, as part of the once only fee. Donations may be called for occasionally, to cover operating costs.

SIXTY YEARS AGO LAST MONTH

Most old timers will recall the name, Hugo Gernsback, author of many text books on radio and editor of the magazine RADIO NEWS.

Sixty years ago, in the August 1925 issue of this magazine, was a picture of a microphone, which was said to be one of the greatest advances of the year in radio.

It was called a 'Marble Block' microphone and was invented in Berlin by a German experimenter named Eugen Reiss. Marble was used, because it was said to eliminate undesirable oscillations, which were common in other microphones. Instead of the carbon powder usually used in microphones of the day, Reiss used a finely powdered crystal substance, the formula of which was a secret!

Many old timers constructed copies of the Reiss microphone, using a marble block, gold plated rods as electrodes and polished carbon granules. What then, was the secret formula, said to be used by Reiss in his original microphone? It seems the wiley German might have 'put one over', still using carbon but, is a crystal granule form. Does anyone know of any other 'secret crystal substance'?

This and many other interesting early subjects on wireless will be coming to you in future issues of the OTN journal, and the Old Timers' page in Amateur Radio.

HISTORICAL RECORDING

Our President and Editor, Max Hull VK3ZS, with Co-Editor Kevin Duff VK3CV, Peter Wolfenden VK3KAU, a member of the WIA 75th Anniversary Committee and Chris Long, Assistant Electronics Curator of the Melbourne Museum, are working on the production of a historical cassette, to be made available for sale during the WIA's 75th Anniversary Year.

There are some remarkable recordings coming to light, giving an insight into amateur radio, some decades ago. There must be some old timers who have recordings of amateurs, either on acetate disc or magnetic tape, who would like to lend them to the Institute for editing. Or perhaps you might have some Edison cylinders with amateur recordings engraved in those fine grooves!

Chris Long is an expert on retrieving this precious material from every known audio source and every care is taken to avoid any damage. Do you have anything to offer? If so, mail it to the WIA Federal Office, PO Box 300, Caulfield South, Vic. 3162 or to Max Hull, PO Box 33, Canterbury, Vic. 3126.

The completion of this recording involves a lot of work, so any material old timers can offer must be rushed to the above, if it is to be used in this First Historical Recording.

1985 VK/ZL QSO PARTY RESULTS

Logs were received from 23 of the 48 VK members, who appeared to take part in the 14MHz Party. 13 ZLs and two W6s were also active. Conditions made contacts between adjoining states rather difficult, but everyone seemed to enjoy themselves. Congratulations to VK7RF, whose 1600 points were the highest yet recorded in these parties.

CALL	MODE	QSO	MULT	TOTAL
VK7RF	SSB	32	10	1600
VK5SJ	SSB	31	9	1390
VK7SA*	CW/SSB	27	10	1350
VK6PM	CW/SSB	28	9	1260
VK2PU	SSB	26	9	1170
VI3LC	CW/SSB	26	9	1170
VK3ML	CW/SSB	26	9	1170
VK4AGL	SSB	21	10	1050
VK3VF	CW/SSB	24	8	960
VK3JI	CW/SSB	27	7	945
VK7BJ	SSB	18	8	720
VK7AL	SSB	12	8	680
VI3XB	CW	20	6	600
VI3KS	CW	19	6	570
VK4OX	SSB	15	7	525
VK4AEM	SSB	14	7	490
VK5RK	SSB	15	6	450
VK4CI	CW	18	5	450
VK3XF	CW/SSB	14	6	420
VK2AWA	CW/SSB	12	4	240
VK7GB	CW	8	5	200
VK5KV	SSB	7	5	175
VK3ZC	CW	8	4	160

*VK7SA was operated by VK3JA

The lateness in publishing these results is due to the late returns of logs. Participants are requested to please forward logs within 14 days of the conclusion of the QSO Party. It takes time to carry out the checking of logs and when received late, precludes the probability of meeting magazine copy dates, which are always (and have to be) well in advance of the publication date.

WIA ACCEPTS RAOTC AFFILIATION

After several months delay, whilst the Federal Council of the WIA considered our application under Article 103 of its constitution, the RAOTC has been advised, that affiliation with the Institute has been approved.

This means that the RAOTC, as a body, is an affiliate of the WIA and derives the benefit of all the facilities and activities the Institute offers.

Article 103 (Regulation 1) defines our affiliation -

The Federal Council may accept any duly constituted group, club or organisation (hereinafter referred to as an affiliate) which in the judgement of the Council has objects such that

a) it allows membership not restricted to persons living in any part of Australia, and

b) it has objects not inconsistent with the objects of the Institute and

c) it confers no voting rights or any other rights whatsoever apart from those listed herein,

d) not less than 75 percent of members shall at all times be licensed radio amateurs, and

e) that not less than 55 percent of its members at any time shall be financial members of a Division of the Institute and resident within Australia.

Under the present operation of the WIA, the membership fee is $24 being what is known as the Federal element. This has been paid by Secretary, Harry Cliff. Your Committee is now entitled to address any suggestions or complaints to the Institute through the proper channels.

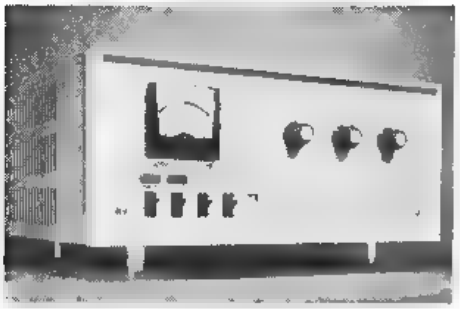
Submitted by Max Hull VK3ZS

AR

KNOW YOUR SECOND HAND EQUIPMENT

A Series to Help You Identify Amateur Equipment

Ron Fisher VK3OM
3 Fairview Avenue, Glen Waverley, Vic 3150



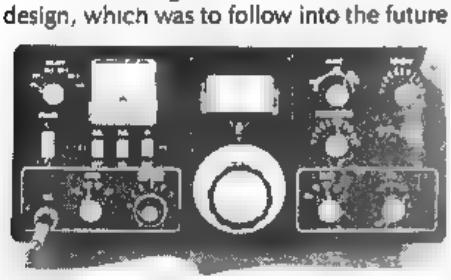
YAESU FLDX-2000 LINEAR AMPLIFIER

Styling matches the FL/FRDX-400 while the circuit is similar to the FL-1000, but much improved in many areas. 6KD6 tubes were now used, which gave a greater output of about 500 watts PEP. High voltage was now up to 1000 volts. An SWR meter was included but the input circuit was still untuned, so it is not really suitable for use with modern solid state gear.

Tune-up had to be quick or they had a nasty habit of blowing up the final tubes, often with spectacular results. Second hand value is around $175.

EARLY YAESU TRANSCEIVERS

By the time Yaesu released their first transceiver in late 1966, there were many other HF transceivers available. Swan, Galaxy, Hallicrafters and National were all well established. For those with plenty of money, the Collins S Line had been around since 1959. A few lesser known American brands, such as SBE, were also available. If you think gear is expensive today, a Swan or Galaxy transceiver would have cost around $600 in 1966. All of this equipment will be looked at in due course. The first Yaesu set new ground with its solid state design, which was to follow into the future.

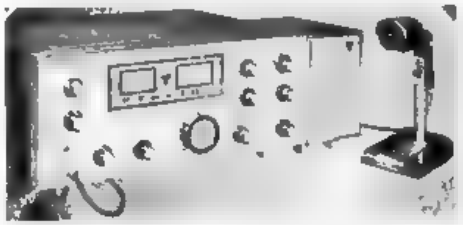


YAESU FT-100 TRANSCEIVER

The FT-100 appeared here during late 1966. By the standards of the time, it was very compact and, with its all black colour scheme, was perhaps the original 'black box'. Its advanced circuitry was almost all solid state. Three tubes were used in the transmitter final, a 12BY7 driver with two 6JM6s in the output. Power output on the 80 through 10 metre bands was about 60 watts. An inbuilt power supply provided for operation from either normal AC mains or from a 12 volt DC source. Current drain on receive was about 500mA and on transmit 10A average. The FT-100 was the direct predecessor of the famous FT-101 series. Original price of the FT-100 was $600 and second hand value today is about $200.

YAESU FTDX-100

Electrically, much the same as the FT-100, but styling has been changed to bring it into line with the other FTDX series of equipment. This model was released in late 1968. Original price was $650 and second hand value today is about $225.



YAESU FTDX-400 TRANSCEIVER

The FTDX-400 was the first of the big high power Yaesu transceivers. It arrived around April 1968. It measured in pre-metric units..15.75 x 6.25 x 13.25 inches. Weight was a hefty 40 pounds. The 400 was a tube design, with a few transistors for such things as the VFO and calibrator oscillator. The power supply was built in for AC only operation. Two 6KD6 tubes were used in the final with 800 volts on the plates. Power output in excess of 200 watts was available, however many 6KD6s 'bit the dust' when the tune-up procedure was extended a bit too long.

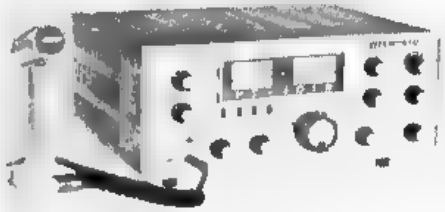
Everything was built in to the 400. VOX, calibrator, CW side tone and that wonderful gadget, the receive clarifier. General performance was very good in its day, but if you are looking at a second hand unit today, check the following points. VFO Drift – I have noted that many 400 VFOs now drift to an excessive degree and this can be hard to fix. Also check power output on each band, which should be at least 150 watts on 10 metres and increasing to about 200 watts on 80 metres. While not covering 160 metres, they can easily be modified to do so. Original price in 1968 was $690 and second hand value today is about $225.

YAESU FTDX-560

Very similar to the FTDX-400, but up-dated in some respects. Tuning rate was improved to give about 20kHz per knob revolution. A row of four slider switches under the meter replace concentric rotary switches on the FTDX-400. General performance is the same as the 400 and the same precautions should be taken if purchase is considered. Released about mid 1971 and priced down to $595. Second hand value today is around $250.

YAESU FTDX-570 TRANSCEIVER

Very similar to the FTDX-560 above, but now has a cooling fan for the final amplifier installed as standard equipment. This improved the overall reliability, somewhat. The 570 also incorporated a noise blanker in place of the audio noise limiter of the earlier model. Second hand value about $260.



YAESU FTDX-401 AND 401B TRANSCEIVERS

These were the last of the line. Similar in appearance to the 560/570 transceivers, the 401 was released in late 1971 and the 401B in early 1974. Both had a CW filter installed as standard and the 'B' model also had an AM facility. They also included an excellent noise blanker. New price was about $600 and second hand value would be about $275.

FLAT VIDEO TUBE DEVELOPMENT

Television sets and video displays are expected to become more compact following a technology breakthrough in flat screen production.

Japanese electronics giant Matsushita Electric has developed a new color screen which reproduces a distortion-free image.

It uses a matrix drive and deflection system, with a panel consisting of 3,000 picture cells arranged in a matrix of 200 horizontally and 15 vertically.

Each cell is scanned by one electron beam which excites phosphor stripes.

Matsushita believes the new flat screen technology has immediate application in office automation technology such as teletex and videotex.

AR

NOVICE NOTES

Ron Cook VK3AFW
TECHNICAL EDITOR

ARE YOU ZERO BEAT?

Zero beat is the term used to describe the condition when two single sinusoidal signals are set to the same frequency. There is no resultant beat note. If the signals are 1kHz apart then a 1kHz beat will be produced which can be heard if appropriate circuitry is used. For example, a signal at 1000kHz and another at 1001kHz will produce a 1kHz audio beat, which may be heard in a crystal set. Amateur radio operation usually requires that participants in a contact be zero beat.

Newcomers often have difficulty in achieving zero beat, so this article is intended to help them.

WHY ZERO BEAT?

In any contact, it is most desirable that all stations involved operate on the one frequency. This minimises the amount of the band space used and reduces the need to use the receiver offset tuning control (clarifier or RIT). The use of VOX, which should be used more often, is inhibited if all stations on a particular frequency are not zero beat. Further, when CW is used, because of the increasing use of narrow CW filters, incorrect zero beating (or netting as it used to be called), can mean not making the contact because you have not been heard. If you are 1kHz off frequency, you will probably be outside the pass band of the other station's receiver.

The most common error is to leave the clarifier/RIT on while tuning. Any offset in the clarifier will show up as an offset in transmitter frequency. Most clarifier controls have poor scales which are unsuitable for setting to better than 100-200Hz off centre frequency at best.

Regrettably some transceivers actually shift frequency slightly when switching from receive to transmit. This can come about because of inadequate power supply regulation, although this would normally also give FM on SSB and chirp on CW. It should not occur in a well maintained rig. Some transceivers suffer from inadequate carrier oscillator buffering so when the oscillator is switched from the product detector to the balanced modulator, a slight frequency shift occurs due to loading effects. The cure for this, when one exists, is different for each rig and not the sort of exercise I would recommend for the average novice. If you have this problem consult the local agents for your rig.

For SSB there is another common source of non zero beat transmissions. This is the different perceptions that operators have of the correct pitch of received audio. The best check of this is performed by joining in a net with a female operator. Female voices need more precise tuning than male voices to sound natural, so if all operators leave their clarifiers off and tune to the female operator's transmission then everyone should be on the same frequency. It is likely that you will prefer some transmissions when slightly mistuned. Perhaps these transmissions have their carrier crystals slightly offset or perhaps it involves the combined response of the microphone and SSB filter. Or perhaps it is all in the ear of the receiving operator.

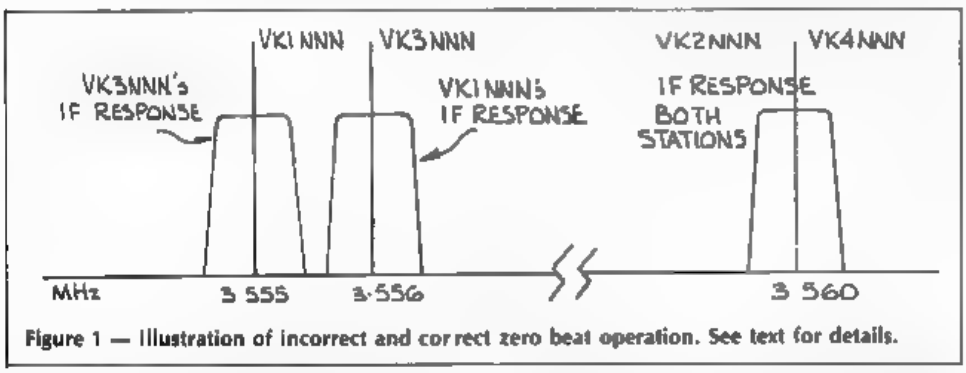


Figure 1 — Illustration of incorrect and correct zero beat operation. See text for details.

Figure 1 shows two hypothetical CW QSOs in progress on the 80 metre band. VK1NNN called CQ and VK3NNN responded. Unfortunately he offset his transmitter 1kHz high. By using their clarifiers, both stations are able to receive one another's signal at a comfortable pitch. It would be difficult for another station to join in as an inspection of the receiver bandpasses will make obvious.

By comparison, before VK4NNN called VK2NNN, she carefully set her transmitter to zero beat with VK2NNN. Both are on frequency and are using the minimum of band space. Anyone else calling on the same frequency will be easily heard, propagation permitting.

HOW OFFSETS OCCUR

In the old days, separate transmitters and receivers were the usual equipment. There was little difficulty in ensuring zero beat as both the incoming signal and the operator's own transmitter could be monitored in the station receiver. Today transceivers are the usual equipment and the operator merely tunes in the desired station and responds, the transceiver being automatically on frequency. Well, that is the theory, but a random selection of QSOs reveals that this is not so.

For CW most transceivers offset the transmit frequency by 800Hz when CW is selected so that when the incoming signal is tuned into the centre of the filter transmission takes place on the same frequency as is being received. This relies on the operator being able to match the received tone to 800Hz. Any error in setting to 800Hz will appear as a difference between operating frequencies. Figure 2 shows the shift of carrier on CW transmit and the high attenuation suffered by signals which are incorrectly set.

The sidetone is usually generated by an audio oscillator which has been factory set to 800Hz (in most rigs) so initial tuning should endeavour to match the received note to that of the sidetone. If any doubt exists, the sidetone frequency should be checked with a frequency counter.

If you do not have access to a frequency counter, then it is possible to use the inbuilt crystal calibrator to generate an 800Hz tone. Set the calibration on and tune to zero beat. The dummy load must be connected for this test. Set the dial scale to an exact alignment with a 100kHz mark or note the reading of the digital dial. Tune 800Hz away from zero beat using the dial and note the audio pitch. Press the key and note the pitch of the sidetone. If all is well they will be almost the same. If not tune the receiver until the tones match and read the receiver frequency. The difference between this and the initial zero beat setting gives the frequency of the sidetone. There is a possible inaccuracy of 100Hz or so due to the limited resolution of the dial, so measured values in the vicinity of 650 to 950Hz are probably acceptable.

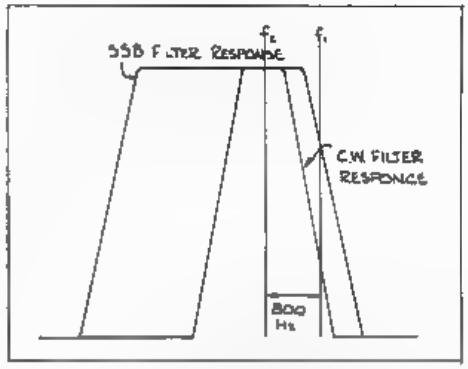


Figure 2 — Illustration of CW Transmission Offset. f1 is the BFO frequency for the product detector for reception of SSB (LSB) and CW. f2 is the frequency of a correctly tuned incoming CW signal. It is also the frequency of the CW carrier oscillator for transmission. Note that this is 800Hz lower than the analog dial indication. (Some transceivers with digital readouts adjust the indicated frequency to be correct for CW transmission). Beware of getting beyond the band edge!

THE CLARIFIER

As misuse of the clarifier is the main culprit for off frequency operation I thought it useful to review the operation of a typical circuit. Figure 3 shows a simplified circuit of the clarifier used in an FT-7. The transceiver is tuned by an L-C VFO. A varicap diode is connected across the oscillator tuned circuit. A varicap is a diode especially constructed to give a variation of capacitance with varying reverse voltage. It is a voltage controlled capacitor, having a range of a few tens of pF in most cases. When the clarifier is off the applied voltage is set by VR1 and VR2. VR1 sets the VFO to correct alignment with the dial by trimming the output from the regulated supply and hence the voltage applied to the varicap. VR2 sets the transmit and receive frequency to the same frequency as obtained with the clarifier on and the clarifier control centred. When the clarifier is off, VR2 determines the varicap voltage and hence the operating frequency.

When the clarifier is on the voltage applied to the varicap is determined by VR2 on transmit, as before, but on receive the clarifier control VR3 determines the voltage and hence the received frequency.

The 800Hz offset on CW transmit is achieved by switching capacitance across the carrier oscillator or by using a different carrier oscillator. The FT-7 uses the latter method.

CONCLUSIONS

The basic rules for avoiding off frequency transmissions are

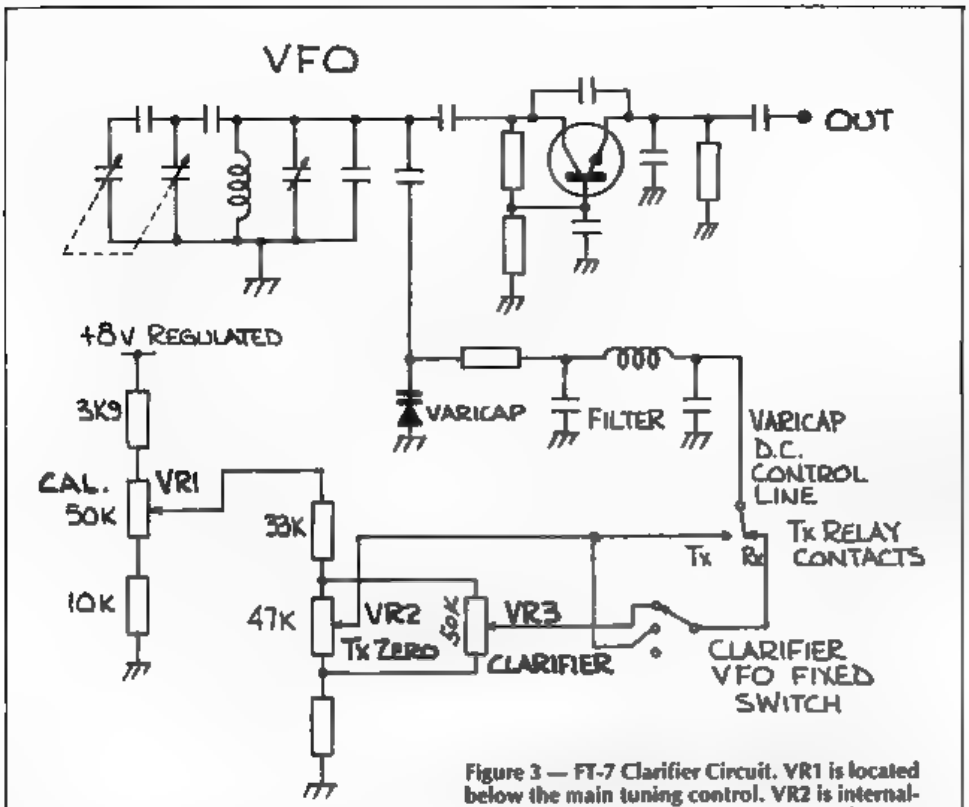


Figure 3 — FT-7 Clarifier Circuit. VR1 is located below the main tuning control. VR2 is internally mounted. VR3 is the clarifier control.

On SSB tune initially with the clarifier off
On CW tune initially for an 800Hz tone.
To obtain audio that suits you use the clarifier - after obtaining zero beat
73 de VK3AFW

As this is my last contribution to this column, I want to take the opportunity to thank all those who have assisted me in various ways over the past few years. It has been fun, thank you for your company.

TELEMEMO

Telecom Australia has awarded contracts totalling $1.3 million for the supply of a computer based message system to be marketed as "Telememo".

GTE Australia and Tandem NonStop have been selected as the suppliers of the system software and operating hardware, respectively

"Telememo" will enable users with access to a personal computer or visual display terminal and modem to enter messages for other users. Users will be able to access 'Telememo" from anywhere in Australia, at any time and scan, read and file their messages.

Announcing this, the General Manager of Commercial Services, Mr Ian Campbell, said that Telecom's "Telememo' service is to be installed during July and will be available for public service by the end of 1985.

From "Telememo' press release 9th July 1985.
Submitted by Peter Gamble VK3YRP

VANUATU

Jack Hannaford YJ8JH ex 9V1ND advises that there are still problems with unauthorised use of YJ calls.

The current situation is as follows.

*YJ8** (two letter calls) are only allocated to residents — both citizens and long term expatriate workers.*

*YJ0A** (three letter calls beginning with A) are allocated to visitors who satisfy the authorities about their technical amateur radio qualifications.*

YJ3 YJ4, YJ6, etc. are not legally allocated calls

Submitted by David Rankin VK3QV/9V1RH

THANKS!!

Regrettably Ron Cook VK3AFW, has resigned from the Publications Committee due to pressure of business commitments.

Ron, over a thirteen year period as a committee member, has held the positions of Assistant Editor and Technical Editor and has been renowned for his segment 'Novice Notes' over the years.

Ron, a qualified Electrical Engineer employed as an Experimental Scientist with the Commonwealth Scientific and Industrial Research Organisation, will be greatly missed for his contribution to the magazine. On behalf of all readers, sincere thanks Ron and best wishes to you and your XYL Ruth, for the future.

Bill Rice VK3ABP
Editor

YD846-hand mic; 50 kohm
YM36-hand mic; noise cancelling
YM-40-for FT480, 680, 780
YM47-for FT290, 690, 790, 230, 730
YM49-speaker/mic for FT290, 690, 790
YM24A-speaker/mic for handhelds
-4 pin, 6 pin, 7 & 8 pin plus and sockets for above
YH-1-headset/boom mic for handhelds and mobiles
YH-2-headset/boom mic for FT203, 209, 703, 709
-SB-1, SB-2, SB-3, SB-10 switches

HEADPHONES

YH55-with earmuffs
YH77-lightweight

RECEIVERS

FRG8800-HF communications receiver, all mode
FRV8800-VHF converter (118-174MHz) for FRG8800
FRG9600-VHF/UHF receiver; all mode; 60-905MHz; 100 memories
FRT7700-antenna tuner for FRG7700/8800
FRA7700-active antenna for FRG7700/8800
FRV7700-VHF converters for FRG7700
Memory unit option for FRG7700

HAM CLOCK

Yaesu QTR24D — quartz, shows time zones

FILTERS

CW, CW (narrow), AM, SSB (narrow) for transceivers.
- FF501DX (30MHz LP)

SERVICE MANUALS

For transceivers and receivers

VACUUM TUBES

572B, 6JS6C (NEC), 6146B, 6KD6, 6JM6, 6GK6, 12BY7-A

SEMI-CONDUCTORS & SPARE PARTS

We have a large range of Yaesu spares; if they are not in stock, we will get them from Yaesu.

EMOTATOR ROTATORS

502SAX, 1102MXX, 1102MSAX, 1103MXX, 1103MSAX
Rotator accessores-301 bearing, bottom clamps, couplings, 6 & 7 core control cable

MORSE KEYS

Hand keys, 'Bug' key, manipulator, Katsumi electronic keyer

METERS

SWR200 Oscarblock power/SWR dual meter — up to 150MHz
T435N fwd/ref power dual meter — 146 and 435MHz; 'N' connectors
FSI-5 — SWR dual meters; ideal for low power transceivers

ANTENNAS

Hidaka VS33 triband beam; VS73SR UHF 7.8dB mobile; VS73GH 70cm ground plane; VS27GR 144/435MHz mobile; LB607 6m log beam
Yaesu RSL series for HF mobiles; RSL145 2m five-eighth wave mobile; RSL145 2m ground plane; RSL435 70cm colinear; spare antennas for FT290/690; YHA-44D halfwave antenna for 70cm handhelds
DP-CP5-trapped vertical 80-10m; trap radials included

COAXIAL CABLE

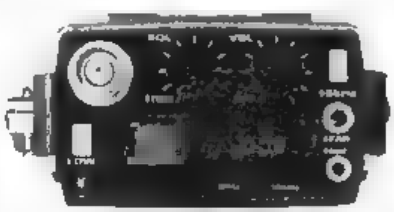
5D-FB; 8D-FB; RG58U

NEW 2 m and 70 cm FM HANDHELDS from YAESU

FT203R
2.5 watts
VOX operation with optional YH-2 headset

PA-3 DC/DC Car Adapter/ Trickle Charger (optional)

FT703R
2.5 watts



Thumbwheel Channel Selector

FT709
4.5 watts

FT209RH
5 watts/500 mwatts

Microprocessor controlled with 10 memories, reverse repeater, power saver to extend battery life, VOX operation with optional YH-2 headset!

PA-3 DC/DC Car Adapter/ Trickle Charger (optional)

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AR85

Andrews Communications Systems

YAESU FT-726 (R)

~~$1499~~

VHF/UHF all mode transceiver. 10 watts output, AC/DC, 0.15uV sensitivity on SSB, LSB, USB, CW, FM. Repeater reverse. IF shift & width controls. RF speech processor 10 channels memory store mode, frequency & searches. Full cross band, cross mode duplex possible with satellite unit. Supplied with 2m module & mic

Full 12 months warranty!

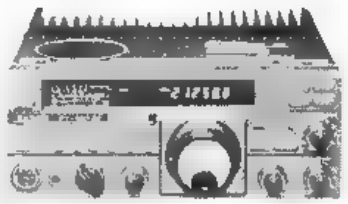
70cm ..... ~~$495~~
6m ..... ~~$375~~
Satellite ..... ~~$185~~

ICOM IC-731

HF SSB, CW, AM, FM transceiver with 100 watts RF o/p. 160-10m transmitter, 100kHz-30MHz receiver. 12 tunable memory channels with memory scan & programme scan functions. PBT & notch tuning. NB, etc. Inc mic. Sensitivity 0.15uV SSB. Compare to the FT-757GX and save (Available soon will be the IC-731S 10 watts for only $975 inc mic)

$1095 Save around $200 Full 12 months warranty

PS55 ..... $279
AT150 ..... $Call



YAESU FT-757GX

~~$1295~~

We guarantee to better any competitor's genuine advertised price on Yaesu amateur radio models we normally stock, providing the competitor has the goods available at the advertised price. SO! WHY PAY MORE?

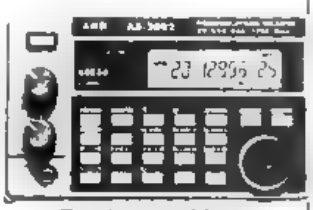
Full 12 months warranty!

FP700 ..... ~~$245~~
FC700 ..... ~~$185~~
FC757AT ..... ~~$449~~
MD1B8 ..... ~~$188~~

AOR AR-2002

New professional scanner receives 25-550 and 800-1300MHz. Now features manual tuning, "S" meter and improved keyboard. 20ch memory etc.

$579 Why pay $625? Full 90 day warranty!



Receive to 1.3GHz!

ROTATORS Why pay more?

*KR 400RC, 400kg/cm torque, medium duty $229
*KR 500, elevation rotator, 400kg/cm $229
*KR 600RC, 600kg cm, heavy duty $319
*KR-2000RC, 2000kg/cm, super heavy duty $559
*KS-050, stay bearing for tower mounting $39

Top and bottom clamps included
Control cable $1 50/m, 6 core.

12 month warranty!

ON SPECIAL THIS MONTH...

All mode scanner receives 60-905MHz USB LSB/CW FMN FMW/AMN/AMW. Sensitivity 0.5μV FMN 12dB SINAD 100ch memory with scan, search, delay, lockout etc. SSB rx to 400MHz

Yaesu FRG-965

YAESU

12 months warranty

YAESU FT-2700RH, 2m/70cm full duplex ~~$945~~
YAESU FT 208R, 2m PROG H/H on special . . . last few $299
YAESU FT-209R, 2m with FNB-4 charger, antenna, carry case (illus) .. ~~$488~~
YAESU FT-209RH, 5W incl FNB-4 charger, antenna, carry case ..... ~~$568~~
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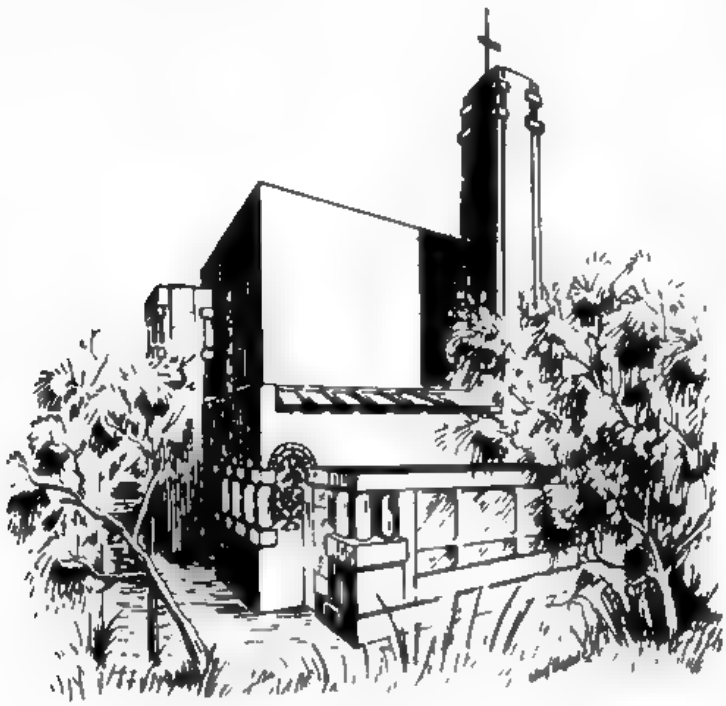

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The First Sixty Years — 1919-1980

1919 was quite a momentous year — not only was everyone settling back into normal life after the 1914-1918 "war to end all wars", but in South Australia a group amateur experimenters gathered to form a branch of the Wireless Institute of Australia. The minimum age was set at 16, and the annual subscription was 10/6d ($1.05) payable in half yearly instalments of 5/3d (53c) at a time when the average weekly wage was 3.9.9d pounds ($6.99). However, the penalty for erecting an aerial without permission was 100 pounds ($2 00) and a 6 months imprisonment!

A provis onal committee was established under Adam Mather, and eight weeks later on 5 11 1919 at the first Annual General Meeting, office bearers were elected

President	*J W Hambly Clark XVX (later 5AA)*
Vice Presidents	*R S Lee*
	J M Heagney
Hon Secretary	*C E Ames XVG (later 5AV)*
Hon Treasurer	*R O C Matthews*
Councillors	*V R P Cook*
	D G Malpas
	D H Smith
	W Harrison
	H C Coles
	R M Dunstone

In 1919 an enquiry was received from a lady aspirant as to admittance of lady members to the Institute Other States were consulted as to the advisability of this, and Miss Rogers was advised "This Institute at present is unable to admit lady members" No lady obtained her licence until Betty Geisel VK5YL in 1936

Prior to WW1 the PMG had issued "X" licences (eg "XVX") in South Australia between 1911 and 1914, but during the war they were all withdrawn. During 1919 the Institute did the examining and the Navy issued "S" permits (eg "S.26") for reception only, and in 1920 the PMG took over both the examining and issuing of licences, such as J W Hambly-Clark's "5AA" licence for transmitting and receiving. By the end of 1923 the prefix was changed to "A" (A5AA), by 1926 "OA" (OA5AA), and in 1929 "VK" (VK5AA) to distinguish the various countries of the world

Most licences were for spark receivers and transmitters, and gradually peop e were given permission to use valves after passing 12 wpm Morse code. However, there were many pirates' who operated without a licence, and the pena ty for this was 500 pounds ($1000) (set before the war)

During 1920 arrangements were made for the starting of a Valve Club by which members could obtain a valve or any other apparatus up to a certain value, by the payment of 1/- (10 cents) per week, ballots for the draw ng of gear arranged at intervals according to the number of members.

A library was established, and a small charge made for membersh p. Also, a "Sale and Exchange

Department" for members with apparatus they wished to dispose of was a popular innovation, as was the weekly buzzer practice class, lectures and demonstrations.

During May 1921 several members indicated they would be pleased to arrange a test to listen to a Victorian Division news bulletin at 8 pm, transmitted on a 200 metre wavelength 5 kW spark set.

Members were requested to voluntarily fly pennants approved of by their Council from their aerials so that members of the Wireless Institute, on seeing an aerial, could tell at a glance whether the owner was a member of the Institute, and so that members from other States visiting would know where they would find a welcome from a fellow member of the Institute. This scheme had already been adopted in NSW. One dozen flags were ordered, at a cost of 5/6d each.

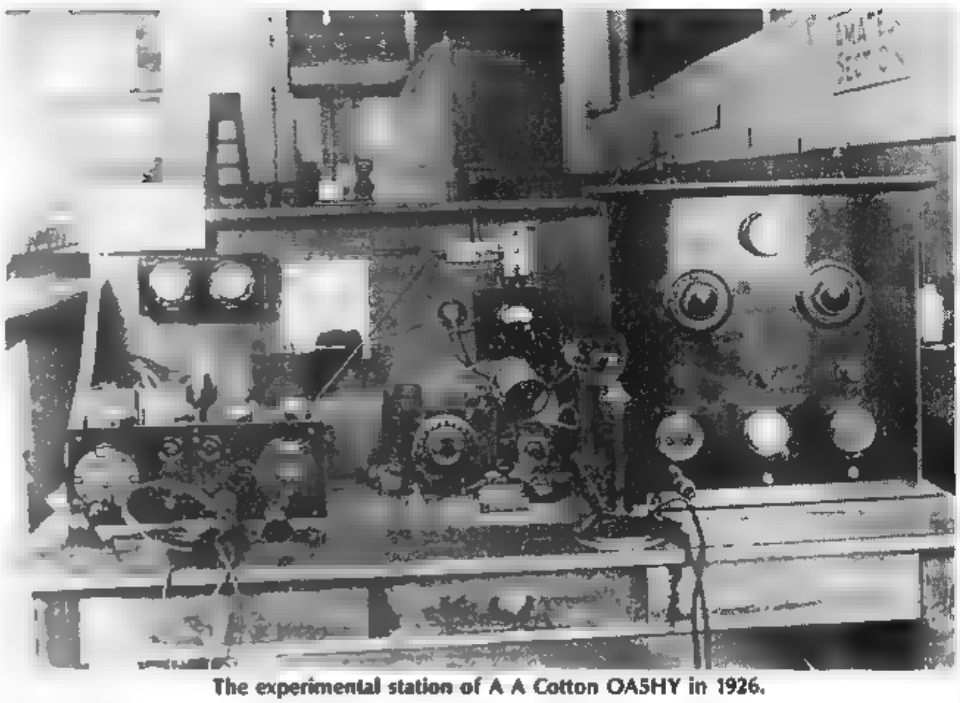
Membership continued to grow, with over 50 members. One applicant for membership, F G Miller, had travelled all the way from Murray Bridge to Adelaide, a distance of over 60 miles (96.5 km), and in view of his enthusiasm in coming such a long distance to join the Institute, the usual proceedings in passing on his application to the Council were waived in his case, and he was declared a member forthwith! (Frank had been a signaller in the first World War, and while in the trenches worked on the development of the teletype machine, and was credited with its invention by the Royal Signal Corps.)

The meeting place of the Institute was altered from Currie Street, Adelaide, to the YMCA, and shortly afterwards to the University.

Also in 1921, the Division was registered under the Companies Act, and on 6th September 5WI was granted for the official station (it became 5AV for 7 months three years later, before reverting back to 5WI).

It was suggested radio apparatus should be exhibited at the September Show to bring radio before the public and make the Institute more widely known.

During this period many lectures were given, such as ones on a tuned buzzer and sparking buzzer; the theory of atoms and electrons; honeycomb, duo-lateral, pancake and spiderweb coils. A single stage amplifier was demonstrated, using a V24 valve and built into a cigarbox by Hal Austin 5BN (later 5AW) "which reflected great credit on that gentleman's handiwork, he having constructed his own intervalve transformer and all other fittings".



The experimental station of A A Cotton OA5HY in 1926.

In 1922 speech and music were successfully broadcast by Fred Williamson 5AH. Adelaide was astonished and delighted with a social and radio dance on 28.6.1923 in the first publicly announced application in this State of broadcasting to practical use, when music for the dancing was played by Harry Kauper 5BG and Lance Jones 5BQ at the Royal Institute for the Blind Hall in North Adelaide, and transmitted by radio from records at the home station of Hal Austin, two miles (3.2 km) away.

By the end of 1924 the Institute demonstrated the reception of programmes on nine receivers set up on a specially chartered night train to Halletts Cove. Nearly 500 booked seats, and it was an outstanding success.

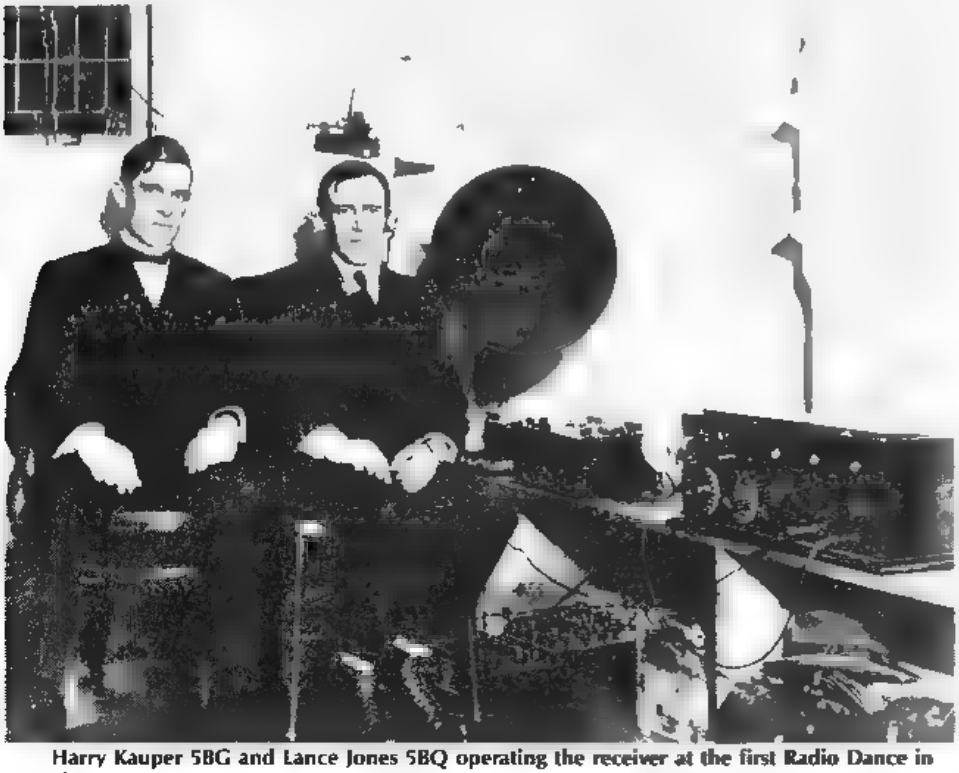
Experimenters were so frequent now (at least 30 or 40) that people with licences to listen to commercial broadcast stations were complaining of interference from the spark transmitters of the amateur experimenters.

Twenty or more clubs were established throughout the metropolitan and country areas of South Australia in this period of intense activity, no doubt fuelled by excellent constructional articles on crystal sets etc. in such papers as "Boys' Own Paper" and the "SA Wireless (Monthly) and Radio Magazine" (the official organ of the Institute from 1924) and "Radio Broadcast" (from September 1925).

In 1924 the NSW Division asked for co-operation in endeavouring to keep in touch with an exploring expedition in Western Australia that was equipped with wireless. The expedition was being led by Dr Clapp, and they were using a Marconi .25kW quenched spark transmitter and valve receiver on 600 metres.

1925 saw new bands issued to experimenters (the 8-10, 21-23, 32-37 and 85-95 metre bands) and the first contacts between SA and California USA on Morse code. It was not long before other countries were contacted.

In 1927 there were 400 amateur transmitters licensed in Australia (45 in SA, and half of those in the Institute), and the Institute suggested to a Wireless Royal Commission that control be by one body, allowable power be 500W, traffic of a non-revenue earning nature be transmitted (to equip



Harry Kauper 5BG and Lance Jones 5BQ operating the receiver at the first Radio Dance in SA in 1925.

Reg Anthony OA5CM transmitting at Unley Park in 1927.

operators to handle any emergency), and permission be granted for experiments on commercial broadcast bands when they were not in use, to determine propagation.

At this time, during a severe storm, a submarine cable to Kangaroo Island broke, and several amateurs maintained contact until repairs were effected

Also in 1927 the fourth Federal Convention was held in Adelaide, comprising representatives of the WIA from all over Australia.

In 1928 the membership was 66 (31 licensed to operate transmitters), and this was the time that meant the end of loneliness to thousands in the outback — Alf Traeger (5AX and 8XT) developed the first pedal radio (typewriter keyboard and a pedal generator) for the Flying Doctor Service, with Harry Kauper 5BG (who had invented a method of firing a machine gun through the moving propellor of a plane during WW1)

Photograph courtesy The Advertiser

Alf Traegar seated at an early model pedal radio set.

Council appointed Bob Bruce VK5BJ as QSL Officer, and this position was shortly taken over by George Luxon VK5RX who undertook it for nigh on 50 years, assisted at times by Frank Bourne VK5BL.

1929 to 1933 were the main depression years, and in spite of reducing the annual subscription from 25/- ($2.50) to 21/- ($2.10), membership numbers dropped by about 50 (from 220 to 170), but one of the brighter efforts to lighten the gloom was the broadcast on commercial radio of the wedding of George Luxon VK5RX and Thelma Job in 1931

Excitement was at fever pitch during the six day Sydney to Perth air race, which started on 28.9.1929. Dougal Whitburn VK5BY was in charge of message handling in SA, and this was the first public performance of the newly formed RAAF Radio Reserve (picked from the Australian radio amateurs) to prove to the Government and Air Force that Australian radio amateurs could become an extremely important cog in the machinery of national defence. Planes in the race were single engined, open cockpit, and all communication was by Morse code. They were also supplied with strips of cloth and a code card to signal to planes if out of touch and forced to land between stopping places.

One of the early "Field Days" organised by the Institute over the years was held at Long Gully, Belair National Park, on 17.11.1929, when portable gear was operated and contests held, and a good time was had by all (transport for some being a Model T Ford).

Television apparatus which "gave visitors an idea of the possibilities of this branch of science when it is fully developed" was demonstrated by its builders R B Caldwell and P A Kennedy, two local radio pioneers, at the Radio Exhibition organised by the WIA in co-operation with radio dealers, held in Adelaide in July 1931.

On opening the Institute's new clubrooms at 176 Rundle Street, Adelaide, the Institute was congratulated on its initiative and enterprise in arranging and so successfully conducting the recent Radio Exhibition, which was a great financial success too. Three sections of the Institute met in the new clubrooms.

Technical Development	*(research)*
Brass Pounders	*(active transmitting)*
Receiving	*(development of shortwave phone reception).*

With hindsight it is amusing to see how knowledge has changed over the years, but in 1933 Professor Kerr Grant gave a lecture on the heaviside layer in which he said he was of the opinion that penetrating radiation was caused by shooting stars, which when travelling through the air and turning to dust by friction, caused the generation of electricity. It was intended at a later date to send up a balloon loaded with material similar to that which we find in a comet or shooting star, and blow the lot to pieces with explosives, ignited by a time fuse, and record on laboratory instruments any electrical impulses which would most likely be generated

In Australia, Federal Executive was originally administered by each State in turn, and in March 1933 Dougal Whitburn was offered the Federal Presidency but resigned in favour of R B Caldwell VK5BP. In 1934-35 the Federal President was Pete Bowman VK5FM

On 1.10.1933 the WIA published its own official organ "Amateur Radio" with a copy sent every month to every member in Australia, and apart from one issue missed during the war years, this excellent monthly magazine has provided official information, technical articles, photos, advertisements, and club and Divisional news ever since.

VK5WI started transmitting telephony broadcasts on the 80 meter band late 1934, and SA can now boast one of the best weekly news bulletins in Australia, relayed on most bands throughout the State and to the Northern Territory.

Back in 1936, however, licensees were informed of restrictions, in that no music was allowed between 5 pm and 8 am on the 7 and 14 MHz bands, all other telephony was to be for genuine experiments only, and each session was to last no more than ½ hour. Also, they had to have a stable signal 25W input maximum. The biggest blow to new licensees was they were not allowed to use telephony at all for a probationary period of 6 months, and this restriction stayed in force for 12 years.

On 1.8.1936 the first auction was held of gear of a deceased amateur

The Institute was the hub of social activities about this time — there were social nights every Friday in the clubrooms for card parties and table tennis matches, general business nights, separate lecture nights, and of course the annual sit-down Christmas supper, smoke socials, dances, picnics, field days and other get-togethers.

When bushfires were rampant in SA and Victoria in February 1939, communication was maintained on Fleurieu Peninsula in SA for 30 hours by a number of amateurs using mainly Morse code, and the hope was expressed more emergency gear would be built and kept in readiness for such times of need

However, in September 1939, on the outbreak of World War II, all transmitting gear was confiscated by the PMG's Department in the interests of National Security, and by the time the gear was released to amateurs six years later, it was so obsolete because of the fortuitous speedy advance in technology by the Armed Services, it was hardly worth bringing home!

During the war, when threat of invasion brought fears of disruption to normal communications, the Institute (with official approval and assistance to obtain replacement parts) set up a network on 1775 and 3605 kHz using telephony and duplex operation, and regular weekly exercises were held by at least eight amateurs, with the blessing of Civil Defence and Navy authorities.

Institute fees had been dropped to 12/6d ($1.25), in an effort to keep members, and encourage others to join, as it was realised their only chance of getting back on air again was to have a strong and united society of amateurs.

After the war, a meeting was held on 18.7.1945 by 43 enthusiasts with the aim of reforming the Institute (Joe Kilgariff in the chair). Within a month a general meeting elected

President	*Ivor Thomas*	*VK5IT*
VP	*Joe Kilgariff*	*VK5JT*
Secretary	*"Doc" Barber*	*VK5MD*
Asst. Secretary	*Ted McGrath*	*VK5MO*
Treasurer	*Ces Baseby*	*VK5BZ*
Membership organiser	*Joe McAllister*	
Publicity Officer	*Pete Bowman*	*VK5FM*
QSL Officer / *Programme Officer*	*George Luxon*	*VK5RX*
Public Officer	*Warwick Parsons*	*VK5PS*
Instrument Custodian	*Frank Wreford*	*VK5DW*

Full membership was 21/- ($2.10), associate 10/6 ($1.05), country 7/6d (75 cents), the nominating fee 2/6d 25 cents, and meetings were held at 17 Waymouth Street, Adelaide. AOCP licence requirements were altered to two classes, and within two years reverted to one class of licence, CW increased to 14 WPM, maximum 100 watt output, no music or entertainment to the transmitted at all, and the 6 months CW probationary period to remain

In 1945 the first post-war AOCP class was held on 5th November, and was attended by 16 students, the lecturers were Roy Buckerfield VK5DA and Harry Robert VK5MY

Enthusiasm was increasing, and at successive meetings over 30 members were welcomed as full members. Not surprisingly, a larger meeting room

Back row — 2nd from right John Bulling VK5KX, right Gordon Bowen VK5XU. Front with bat — Warwick (Pansy) Parsons VK5PS, 2nd from right Clem Tilbrook VK5GL. Date and other unknown — can any member help?

was needed and this was hired (still at 17 Waymouth Street)

Identity badges were needed at meetings (a healthy sign!) and an attendance book was implemented to record signatures and call signs of members and visitors attending general meetings. A buy, sell or exchange board was also provided at meetings, and amateurs proposing to carry out tests on any particular frequency were requested to place a notice on the board showing times and frequencies.

A Technical Information Service was formed under Ted McGrath VK5MO, and the Vigilance Committee was reformed and known as the Experimental Advisory Committee, to act as a buffer between any amateurs infringing the regulations, and the PMG's Department

Test equipment was available to members, and advantage taken of the disposal of surplus Service gear.

One aid to amateurs which was eagerly awaited were the Ionospheric predictions of John Allan VK5UL

A Programme Organiser was appointed, and one very popular item on the year's agenda was always the Christmas Social, held in a cafe on North Terrace, Adelaide.

A War Service Record was undertaken by Council, and a new Constitution was adopted

By May 1946 it was deemed safe enough to take no further action regarding the amateurs' part in the Air Raid Precaution (ARP) network.

It was normal to build your own gear, and in those busy constructional days of "home brew" gear, electrical traders in Adelaide gave a discount to licensed amateurs who were members of the Institute, but later on as the "black box" (manufactured gear) became available, discounts (and home brewers) became less common.

In those days the transmitter was crystal locked onto one frequency, and you had a separate tunable receiver. You would call "CQ" on your own crystal frequency, and tune around until you heard someone calling you (on their crystal locked frequency), so you always worked split frequency. When VFOs came into use, it was normal to get on the same frequency as the person calling you (which is what we do now, although with a transceiver you are automatically on the same frequency (hopefully!)

A discussion was held on the extension of hours for amateurs outside restricted periods, because amateurs were allowed to broadcast music and any other entertainment on what is now known as the commercial broadcast bands, during certain hours when the normal broadcast services were not operating, eg Sunday mornings and after 10 at night. Eventually the amateurs were unable to do this, because the broadcast stations got on earlier and earlier, and now many operate 24 hours a day.

Amateurs had the use of bands 28-29, 50-54, 166-170, 1345-1425, 7.150-7.200, 14.100-14.300 MHz, and by September 1946 the 3.500-3.800 MHz band was released. Within two years the 144 MHz band was released in lieu of 166 MHz

At the end of 1946 members were circularised regarding sending food parcels to their opposite number in G-land for instance Dougal Whitburn VK5BY sent a parcel to G5BY (much to the recipient's surprise and delight!)

Total membership by now was 267, and growing steadily. Fees were one guinea still ($2.10).

Early in 1947 the half hour limit placed on each QSO was abolished, and QSL cards were provided free by the SA Tourist Bureau to amateurs in SA as a novel travel promotion and good publicity.

Les Pearn VK5PN suggested the WIA should again broadcast notes to country and city members, and Reg Harris VK5RR commenced the VK5WI broadcasts under his own call sign in January 1947, the call sign and licence for VK5WI being re-issued on 13.5.1947

A Sports and Field Day was held at Hawthorndene Oval in January 1948, and proved a great success, and others have since been held at Clare, Fort Largs/Outer Harbour

The AOCP classes were also so popular by 1948 that there were 31 students and others had to be turned away.

An Associates' Representative (Jim Paris) was appointed to Council also a VHF Representative. nominations were called for a Country Representative on Council, and three Trustees (Ces Baseby VK5BZ, Len Sawford VK5YF, and Dougal Whitburn VK5BY) were appointed under the terms of the Constitution to safeguard excess monies.

15.8.1948 saw the first Remembrance Day contest to perpetuate the memory of amateurs who lost their lives in the war. VK amateurs only participated until 1971, when New Zealand amateurs joined in. In the 32 years 1948-79 inclusive, the trophy has been won by VK5 ten times.

Fees rose to 25/- ($2.50) full member, 17/6d ($1.75) associate city, 15/- ($1.50) country.

The Christmas Social was catered for at the Burnside Town Hall at a charge of 4/- (40 cents) per member. A vote was taken on whether it should be "wet" or "dry", and the "drys" won 57 to 55 with 1 informal vote. Costs were becoming prohibitive, and the following year the Social was an informal gathering in our own meeting rooms with members bringing along a basket supper. It was some years before ladies were invited to attend.

Gear was purchased at this time for the use of members confined to hospital (type III, Mk 2), and a Visiting Committee discussed to visit sick amateurs.

The May 1950 meeting proved to be quite a success (after a cautious start) as a "buy and sell" was held and a considerable quantity of equipment changed hands. Enthusiasm for this type of entertainment has not diminished over the years.

Amateurs in Darwin proposed to form a branch of the WIA there in 1951, and it was not for another 9 years that VK8 was allocated to the Territory.

The Woomera Radio Club sought affiliation with the WIA, and had their own special difficulties operating from a security area.

The Institute has arranged working displays at many Exhibitions, and only those who have assisted would appreciate the improvisation neccessary to get gear and aerial systems functioning satisfactorily under makeshift and often awkward working conditions. The Institute was awarded the bronze medal for its display of VK5WI at the Royal Adelaide Exhibition in 1952. While the Governor of SA watched, the amateur operators worked America, to everyone's delight. When the medal was received, the President asked Reg Harris VK5RR to be custodian, as it was due to his efforts that VK5WI was the success it turned out to be.

In this year that King George VI died, a dozen Greybeard Certificates were issued by the Institute to those members of more than 20 years' standing who were still active on the air, and these were proudly displayed in their shacks.

1954 saw the first of the picnics for XYLs and children, at the George picnic ground, and it has been a regular highlight ever since, latterly being held at the Bridgewater oval in the Adelaide Hills.

VK5 agreed to provide the Federal Contest Committee for four years from 1954, and many "volunteers" were coerced to help the Committee of Gordon Bowen VK5XU, Reg Harris VK5RR, Jim Vivian VK5FO, Jack Coulter VK5JO, Reg Galle VK5QR and Warwick Parsons VK5PS.

1954 also saw the Limited AOCP exam granted by the PMG's Department, and these successful applicants with "Z" calls were admitted to full

Award issued to the VK5 Division in 1952.

membership of the VK5 Division. The age limit for the AOCP had been set at 17 years, and this was reduced to 16 years and later to 15 years.

In 1955 Jim Sullivan VK5JK suggested the forming of an emergency network, after difficulties experienced in maintaining communications in recent disastrous Hills bushfires, and in view of floods in NSW. Mention had been made in his submission to the Minister of Agriculture of the radio communication service provided during the war from the metropolitan area to Civil Defence HQ in the event of landline disruption, and also that the WIA had some 3,000 members (350 in SA of whom some 200 had transmitting and receiving equipment in operation, 50 of them located in country towns and 150 in the metropolitan area). The Government accepted this proposal. Within 12 months Fred Martens VK5MA proved the value of the emergency network system during floods at Renmark.

Photograph courtesy VK5 Archives and Lance Worrall VK5AW

SA Divisional Council 1953, Back from left — Jack Coulter VK5JD, C Sappiatzer, Joe McAllister VK5JO, J Parish, D Hosking, John Bulling VK5KX and Hal Austin VK5BN/5AW. Front from left — Reg Harris VK5RR, 'Doc' Barbier VK5MD, 'Pansy' Parsons VK5PS, Gordon Bowen VK5XU and H Vivian. (Hal Austin became SK in August 1954 and 'Doc' Barbier in March 1962).

Joe McAllister VK5JO showed considerable foresight in 1955 when he organised the Brompton Boys' Club, the first of the Youth Radio Schemes in Australia, which aimed to develop the capabilities of boys and girls of generally High School age, towards radio and electronics as either a hobby or career. Bob Guthberlet VK5OD was the State Co-ordinator of the YRS in SA.

Meeting nights were extremely popular, on an average 90 to 100 attending. A display of members' gear was a popular innovation, and an inspection of the Electricity Trust's power house at Osbourne was a great attraction. Such was the enjoyment of the meeting nights that repeated visitors had to be given a tactful suggestion as to their joining the Institute!

The changeover to 50-54 MHz from 56-60 MHz came into effect, much to the concern of most amateurs, because the band was not harmonically related. We used to have bands 14, 28 and 56 MHz, and you would have a 7 MHz "rock", double for 14, quadruple for 28, then double again for 56, using the same piece of gear and doublers etc. When the 50 MHz band came into use, it was necessary to buy a new crystal, say on 8.3, triple it to 25, then double to 50.

Another cause for concern to amateurs was the proposed allocation of the 144 MHz band to TV channel 5. South Australia has been fortunate to avoid this.

The TVI Committee was formed under Ray Tuck VK5BT, and the SWL Group had regular meetings with Jim Paris as their representative on Council.

During October 1957 the Institute's Moonwatch Committee played a significant role in tracking early satellites launched by Russia and America, and the data obtained was sent to those countries. Observers were

Gordon Bowen	VK5XU
Graeme Bowen (son)	VK5XV
Colin Luke	VK5XY
Brian Austin	VK5CA

often on a clear, frosty night on the flat roof of a University building. The Astronomical Society provided the dozen or so telescopes, and Gordon built a receiver on 108 MHz to give warning of the approach of the Sputniks etc over the horizon.

July 1958 saw the power output increased to 150W, and this remained the limit until 10 years later when the wording was altered to a maximum of 400W PEP for SSB operation.

South Australian amateurs enthusiastically took part in the first Jamboree on the Air in 1958, when scouts and guides visited amateur radio stations to talk to others around the world.

In December 1959 the first issue of the SA wireless Institute Journal was written and sent to the Division's 400 members, by Gordon VK5XU. Funds were cautiously provided, as it was not expected to continue, yet in 1985 the Journal celebrates its 26th anniversary. This is the only State to have such a direct link with its members (other than through "AR").

1960 also was the year the meetings were held in St Paul's Church Hall, Pulteney Street, Adelaide. Within 2½ years another move was made to the Master Builders' Assn at 47 South Terrace, Adelaide.

Fees were raised in February 1960 (for the first time in eight years) by 10/- ($1) for all but junior associates.

A beacon was commissioned and operated on 50.5 MHz at Mt Lofty, with a VHF beacon under consideration, and a beacon on 430 MHz proposed.

A Public Relations Officer, and a Publications Officer were appointed at this time.

Amateur TV experiments were proving successful, with the first two-way TV contact in SA in 1963 claimed between VK5AO/T and VK5ZEY/T over a distance of 5 miles (8 km).

The 1964 Federal Convention was held in Adelaide (the third time we had hosted this), and one of the items discussed was the formation of the Federal Company of the WIA.

The Institute in SA had conducted classes for the AOCP from the very early days (and for the last 12 years John Allan VK5UL had taken the theory classes). These were organised and financed by the Adult Education Section of the Education Department in 1964.

The Minister for Education also approved the Youth Radio Scheme for SA. Requirements were that we must find interested schools and arranged speakers, we must have active amateurs to assist with club activities, training and testing for certificates, and we must provide equipment parts. Training must be guided and integrated into school curricula. There were 12 YRS clubs affiliated with the Division within 12 months, although latterly the novice licence has captured the enthusiasm of youngsters (and those not so young) alike.

Around the time of the introduction of decimal currency, kilocycles (Kc) became Kilohertz (kHz).

There was a sigh of relief from those sitting for the AOCP when the CW speed was reduced from 14 WPM to 10 WPM at the end of 1967.

In September 1968 membership figures had risen to 270 city full, 120 city associate, 135 country associate = 525 in all. Fees were $5 city full, $4 city associate, $3.50 country full & associate.

The VHF Group was very active, with the 576 MHz distance accomplishment and the 432 MHz converter project. Members were also constructing a translater for installation in the Adelaide Hills. Repeater VK5RAD was commissioned in 1970.

VK5 was making plans to host the 1970 Convention and this time VHF allocations were high on the agenda for discussion.

1970 saw the start of objections by Councils to the erection of towers by amateurs, and the Courts in the eastern States ruled that a Council was not competent to rule on aesthetic grounds. Negotiations continued, including an appeal to the Planning Appeal Board, with the Institute endeavouring to educate local governmental bodies on a more accurate interpretation of the Building Act in regard to processing amateur radio tower installations. (The Supreme Court upheld our appeal in 1981 that amateur radio is a normal home activity.)

VK5 promised support for the Australis OSCAR 6 satellite ("Orbiting Satellite Carrying Amateur Radio") and appointed Edwin Schoell VK5NZ as the Australis Co-ordinator. Satellites have proved a very popular aspect of amateur radio activity.

The amateur licence fee was increased to $6 in 1970, instead of $2 (not changed since 1924).

The Equipment Supplies Committee came into being under Barry Cleworth VK5BQ and Roger Pullem VK5ZKK, and an Intruder Watch Co-ordinator appointed.

In 1971 the Division had nearly 650 members, and a Building Committee was appointed to investigate obtaining our own headquarters. The Thebarton Destructor Building (an incinerator designed by Walter Burley Griffin from Chicago, USA, who also designed Canberra, ACT) was deemed suitable (with a lot of work) and the first Council meeting held in the renovated building on 15.11.1974. The official opening was on 3.4.1977, forty years after its original opening.

Clive Pearson VK5PE, secretary of SA Division 1977-79 at the controls of the Institute's transmitter.

The Federal Awards Manager's position was undertaken in 1973 by Brian Austin VK5CA, and then by Bill Verrall VK5WV in 1979. Duties included issuing certificates for the Worked All VK Call Areas, Worked All States, VHF Century Club, Worked All Continents, DX Century Club.

In 1974 it was decided novice licensees would be granted full membership in SA, as had the limited licensees 20 years before. The Institute undertook two novice courses and appointed John Mitchell VK5ZJB as Education Co-ordinator. The first novice exam was held in 1976.

VK5 was glad to be able to help with communications after Cyclone Tracy hit Darwin on 24.12.1974, with WICEN and others assisting.

The beginning of the end! The first female elected to VK5 Council in 1980. Back row from left: Maurie VK5ZU, Ross VK5AG, Ian VK5QX, John VK5NX, Bill VK5AWM and Gerry VK5PI. Front — Trevor VK5ATW, Jenny VK5ANW and Colin VK5HI.

Fees in 1976 were set at $20.50 full city, $19 full country, associate city or country, $9 student or pensioner, $2 family.

1976 was a busy year for repeaters, with 5RMN (mid north) handed over, 5RHO (Ch 5 at Houghton near Adelaide) operational, 5RMG (Ch 6) at Mt Gambier almost ready, and application for a TV repeater being processed. Later, a repeater was proposed for Cowell, also a 70 cm repeater.

New groups were being formed - Microprocessor Group, RTTY, and John Ingham VK5KG was appointed by Federal HQ as Custodian of the Video Library. A Membership Secretary, Historian, and Commissioner for Scout Radio were also appointed.

Membership was now over 900, and the first one-day Planning Conference for the Division was held at a Christies Beach venue, with 10 Council members and 2 invited members attending, and the discussion covered the meeting format, State repeater policy, station facilities at HQ, broadcast facilities, WICEN, education, relations with P & T, public relations, financial planning report etc.

Over the years the Institute has been fortunate in having many willing workers, but ten members have given exceptional service to the Institute, and have been granted Honorary Life Membership. Up to 1980 these were –

Professor Emeritus	*Sir Kerr Grant*
Joe McAllister	*VK5JO*
"Doc" Barbier	*VK5MD*
Gordon Bowen	*VK5XU*
Warwick Parsons	*VK5PS*
George Luxon	*VK5RX*
Brian Austin	*VK5CA*
Geoff Taylor	*VK5TY*
Roy Cook	*VK5AC*
Bob Murphy	*VK5MM*

In the 60 years of its existence in SA the Wireless Institute has increased to over 1,000 members, and although not as widely known as some would like, it is respected in the community. It is one of only two hobbies in which members have to pass a stiff exam and be licensed (the other being flying).

It is hard to imagine the next 60 years could see the same progress, excitement and rewards of the last 60 years, but with the advent of computers, new horizons will surely emerge to test the initiative and ingenuity of members of the Wireless Institute.

(It should be noted the above is necessarily incomplete, as 25 years of minutes are missing.)

An approximate decimal amount is included beside the pounds to allow younger members to compare. **AR**

Members of the Past VK5 Divisional Council


JOHN MITCHELL VK5JM


IAN HUNT VK5QX


BILL WARDROP VK5AWM


JOHN BUTLER VK5NX


GRAHAM RATCLIFF VK5AGR


JENNY WARRINGTON VK5ANW


DAVID CLEGG VK5AMK


STAUNTON McNAMARA VK5ZH


MAURIE PHILLIPS VK5ZU


DICK BOXALL VK5ARZ

WIA (SA DIVISION) GENERAL INFORMATION

The Headquarters Building is at the rear of the Thebarton Council Depot, West Thebarton Road, Thebarton, Phone 352 3428. General Meetings are held on the fourth Tuesday of each month at 7.30 p.m.

The Divisional Broadcast is transmitted each Sunday at 9.00 a.m. local time on 1.820 MHz with relays on 3.550, 7 095, 14 175, 28.470, 53 100, and 147.000 MHz. The Broadcast is also relayed via the Adelaide Amateur TV repeater VK5RTV with an output frequency of 579.000 MHz. This repeater may be tuned on channel 34 of any television receiver. Some relay frequencies may vary slightly to avoid interference. Except for a four week break over Christmas, Morse Practice Transmissions designed specifically for learners, are provided each evening at 1030 UTC, on 3.550 MHz +/– QRM.

A WICEN Call Back net operates each Wednesday evening at 8 p.m. local time on repeater channel 7000 and at 8.30 p.m. on a frequency of 3 600 MHz. Call sign for the WICEN Control Station is VK5WIE.

The Divisional Journal is published bi-monthly by the SA Division of the WIA. The closing date for receipt of contributions or copy is the 15th of each odd month.

FIVE-EIGHTH WAVE

Jennifer Warrington, VK5ANW
59 Albert Street, Clarence Gardens, SA 5039

First y, I would like to thank a l those people who have been in some way involved with making this issue of AR a very spec al issue for VK5 Hopefully, they wi a l get their due credit in various other places in the magazine, if I mentioned them all here it would take up most of the co umn

This year s the tenth birthday of ALARA (no, you haven't started reading the wrong column), so to celebrate the event, each state was asked if some sort of celebrat on could be arranged within the state Here in VK5 there are about 25 to 30 licenced YLs, so it was decided that we shou d contact as many as possible, and those that we couldn't contact personal y, were inv ted via the WIA Broadcast

On Saturday, 27th July, a group of 15 licenced and two l cenced YLs met for lunch at the Olde London Tavern in Ade aide Those present were, Marlene VK2KFQ (an honourary VK5, as she lived in Adelaide a couple of years back), Joy VK5YJ, Marlene VK5QO, Meg VK5AOV, Denise VK5YL, Myrna VK5YW, Loraine VK5LM, Janet VK5NEI, Vicky VK5FK, Carol VK5PWA, Elaine VK5KEB, Linda VK5QP, Judy VK5BYL, Pauline Koen, Liz VK5NES, Diane Smit and myself. Carol VK5PWA flew from Port Lincoln for the weekend and stayed with us at the Warrington QTH.

Judy travelled up from Victor Harbour on the day, and Janet and Loraine had also travelled from Wasleys and Mallala, respectively Marlene VK2KFQ had planned a holiday in Adelaide for that week!

One person that we would have liked to have had present but, unfortunately we were unable to get in contact with her, was Mrs Elizabeth Wallace, the former Betty Gersel, who was the first VK5 YL and the first VK5YL! Both Linda and Myrna were founder members of ALARA, so their presence also had an historical significance. At the other end of the scale, we were delighted to have Liz VK5NES and Liz's mother, Diane. Liz is our newest VK5 YL, and she is 12 years old Her father is Hans VK5YX and both he and Diane are justifiably proud of L z. We hope to hear a lot more of you on the bands Liz, when homework permits

The get-together was considered such a success, it looks like being an annua event. Any YL who would like to join us next year, please et me know

Thankyou also to Peter Koen, who took photographs of the h storical, or should it have been hysterical, event.

DIARY DATES

22nd October . . . Genera Meet ng. Speaker w l be John Moffat VK5MG, showing us the latest n radio gear

29th October Buy and Sel night.

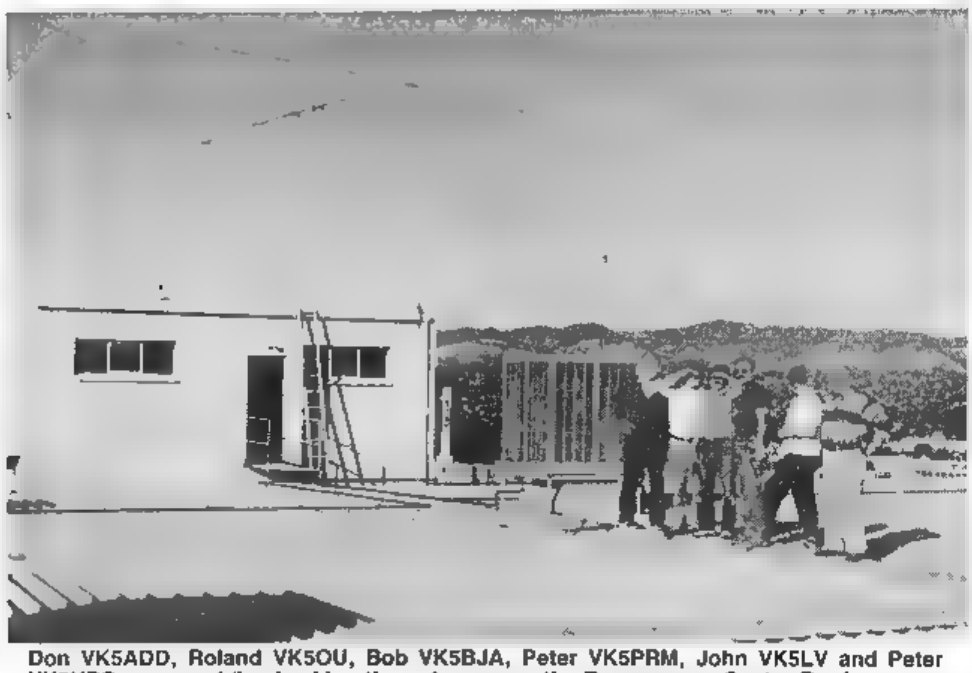
17th November WIA Picnic

26th November Genera Meeting. Speaker wil be Trevor Conlon from CFS Headquarters. AR

"AMATEUR CROWEATERS ACTIVATE FROM VK5-LAND"

Graham Horlin-Smith VK5AQZ
Co-ordinator 150-W A (SA)
2 Athol Avenue, Plympton, SA 5038

Eighteen months planning to link amateur radio with SA's 150th birthday in 1986 reached fruition on Monday 27th May 1985 when VK5JSA, the special events call sign, was activated from the centre of the city of Adelaide. The location was the Renaissance Centre which overlooked the Rundle Mall in Adelaide.



Don VK5ADD, Roland VK5OU, Bob VK5BJA, Peter VK5PRM, John VK5LV and Peter VK5NPC, pause while checking the antennas on the Renaissance Centre Roof

Three operating points were established. At street level a group of HF operators worked two rigs from an OB rad o van, a 93X and an FT757GX out of a 204 BA, 4 element monobander and a 40-80 metre trapped d pole respectively located on the roof of the seven storey building about 61 metres (200') above ground level The second operation for CW and RTTY was located in Radio Rentals (Adelaide) ground floor shopwindow (5 band trapped vertical also at the same height) and the third consisted of UHF/VHF, ATV and a satellite display on the 6th floor of the restaurant which had a commanding view of Adelaide and Repeaters 5 and 8 in the Adelaide Hills. Computers by ICt demonstrating the link with amateur radio and substantial visual displays by the WIA (SA Division), International Communication Serv ces, Dick Smith's (Adelaide), the Department of Tourism and the Jubilee 150 Comm ttee complemented all operating points. With outside scenic lifts opening nto the restaurant an average

Bill VK5AWM, WIA, SA Division Immediate Past President, welcomes guests at the Renaissance Centre Restaurant. From left — Rob VK5RG, Bill Fitzgerald, Jubilee 150 media. Bryan Sheahan, Department of Technology, Dr Ian McPhail, chairman of Bi-Centenary Committee, John Neylon, Jubilee 150 Education Department, Graham VK5AQZ, Amateur Week Co-ordinator.

of 2,000 daily visitors had a direct eyeball with amateur radio during the weeks operation.

The activity launched the commencement of a programme of several activities which intend to continue during 1985 and throughout 1986. As a result of this and other planned activities VK5 amateurs expect to propogate 100,000 special Jubilee Sourvenir QSL cards worldwide and 2,000 awards during 1986. The special issue welcomes amateur participation in SA's 2,000 plus planned Jubilee programme and extends "Happy Birthday" greetings to SA in eight different languages, a very novel almost "unique" welcome to the first Grand Prix held in Australia which coincides with the commencement of a "whole" year of birthday parties. 28th December is SA's Proclamation Day, and 1986 it's 150th birthday or sesqui centenary year. Come on over and "enjoy" SA!

SA has chosen to share and twin its 150th year celebrations with Texas, Adelaide and Austin, Texas, being linked as twin cities. In excess of 170 towns and districts and 300 schools have been distinctively linked and exchanges have already commenced. SA amateurs see a role in providing the communication link to assist, where possible, with towns, schools, activity groups, community and service organisations — a daunting task, but look upon as a real challenge and a spirit of adventure which hopefully will be rewarding in so far as the hobby of amateur radio is concerned. Promotional type activities and working with Jubilee activities, it is hoped, will provide a positive exposure of the hobby as well as an awareness and a better understand ng of amateur activities in the long term

"Amateur Radio Week, Promoting SA", fired the first shot and the launch of the programme. The official launch was by Dr Ian McPhail, the Chairman of the Bi-State Centenary Committee with guests from government, the Jubilee 150 Committee and representatives from sponsorship groups, 50 guests in all. The Launch took place in the VIP area of the Renaissance Centre Restaurant on the 6th Floor Escorted tours of the operating locations, press releases, media

John VK5LV conducts a footpath Press Conference during AR Week.

involvement and amplified amateur radio links with Texas via San Francisco into an amplified Mall focused the public's attention on amateur radio which continued throughout the week. Special appearances later in the week by Mr Gavin Keneally, the Hon Minister of Tourism and Local Government and a special amateur link between the cities respective Mayors, Adelaide's Lord Mayor, Mr Jim Jarvis, and Austin's Mayor Frank Cooksie, exchanged greetings and invitations and gave further impetus to amateur communications in support of Jubilee 150 and SA promotional activities.

The WIA (SA Division) Sub-committee of Jenny Warrington VK5ANW, Rowland Bruce VK5OU together with Graham Horlin-Smith VK5AQZ, co-ordinator, acknowledge the financial sponsorship of the Department of Tourism (SA Government), Estrow (Civil Engineers and Supervisory Consultants), the Jubilee 150 Committee and the WIA (SA Division) with the willing backup support in equipment and displays by Radio Rentals (SA) International Communication Services, Dick Smith's (Adelaide), The Electric Bug, Captain Flash Advertising, Norman's Estates Winery, ICL, the South Coast ARC, the Renaissance Centre Management (Emanual Group), Sound Out Services and the Renaissance Tower Restaurant management. In such an undertaking these people gave the group the opportunity to mount a successful promotion of amateur radio and achieve the purpose of the programme. There were many amateurs themselves who contributed time and effort to get the show into the ionosphere for which sincere gratitude has been acknowledged

The week's operation netted 1063 logged contacts of which there were 297 DX contacts from 20 countries, a reasonable expectation when priority was given foremost to promoting SA and the 1986 Jubilee celebrations. Timeouts were opportune to introduce the hobby to the many visitors and answering enquiries from interested "budding" amateurs in the making. USA, ZL and VK headed the list of contacts with one major sortie into Europe when the 204 BA, 4 element 20m monobander was armstronged into the long path. To linger at the centre and under a major pile-up was a fantastic experience

Almost 800 contacts were made with Australian stations, 200 of which were made by UHF and VHF. The 40 and 80m trapped dipole favoured Australian contacts generally. Promotion rather than contesting was preferred particularly as the location point of contact was at the very heart of the City of Adelaide's shoppers and school holiday visitors. The organisers were pleased to welcome to the official promotion Dr Karl Meizner and his charming wife, Wendy, during their short visit to Adelaide and to share some of the host state vintages.

THE STICKY-TAPE AND STRING SECTION

The problems of erecting temporary HF antennas on the roof of a city building are many. The most important consideration was to ensure safety for both the crew erecting the antennas and

Bob VK5BJA making contacts on 20 metres from the outside Broadcast Van.

the general public below. The antenna crew were no real worry, because one look over the side of an e ght storey building s all it takes for individual se f-preservation to take over, and any thoughts of "daring deeds" vanish instantly.

The safety of the public is another matter We had to erect an efficient antenna system that would stay put for the duration of the project, not fall off the building and cause In,ury below, not to mention, re-arrange the VSWR and element spacing of the antenna.

The antennas decided on were a 204 BA, 4 element, 20 metre mon-band Yagi, a half-wave d pole on 80 metres w th traps for 40 metres, a couple of trapped verticals and a VHF "Slim Jim"

The insta lat on of all these antennas went smoothly and with the enthusiastic and dedicated crew, took one and a ha f days working at a moderate pace and although the roof now resemb ed an elaborate "b rd-trap", antenna performance was interesting, if not predictable

The 204 BA when checked, exh bited a VSWR of 1,1 1 right across the band. I suspect that the 300 metres of RG-8 might have been responsible for making t ook slightly better than it was. The dipole, wh ch was also fed with 300 metres of RG-8, underwent apparent VSWR changes, as originally it was tuned using a short feeder However the result was still reasonable and well within the scope of the automatic AT units used

These antennas enabled the stat on to transmit strong signals and we generally received very good reports.

Due to a high noise level, reception was not as good as we had hoped The noise problem was the result of a trade-off between going for the efficiency of elevation, and the local noise generated in the elevator control rooms which were, of course on the roof with our antennas. The trapped verticals, needless to say, were particularly suscept ble to the noise and as a result, weren't very successfu

Surprisingly the "Slim Jim" on 2 metres performed wel nsp te of the fact that it also was fed with 300 metres of RG-8

The moral of the story is, given a little

The OB Van used for HF contacts.

forethought, commonsense, a good crew and a few handheld radios, a complex project can be achieved with safety and efficiency

Immediate responses to the programme have been most gratifying to those involved, the support groups and, in particular, the WIA (SA Division) and Council which superintended the operation and gave the green light of approval to the proposal, purpose and eventual achievement of the project. The co-ordinators, the operators, the technical advisors and the antenna group ensured the practical success of this first up, unique operation which had its few uncertainties, doubts and difficulties to say the least. Fortunately the project, in its outcome, was almost problem free and therefore projected the hobby and image of amateur radio favourably in the eyes of the community and the general public. Of valued importance has been the impact of sharing the hobby from the awareness viewpoint with people from higher echelons of government and administration another positive step forward to promote the rewarding expectations of amateur radio on the home front and welcome visitors to SA.

"Amateur Radio Week, Promoting SA", successfully negotiated by a willing group of amateur entrepreneurs, has provided the spark for future programmes as SA prepares itself for its Jubilee celebrations . in 1986.

Photographs courtesy Peter Koen **AR**

SA WIA Divisional Presidents

10.9.19 —	A Mather (provisional President)
1919-1923	J W Hambly-Clark XVX (later VK5AA)
1923-1925	R B Caldwell
1925-1927	Jack M Honner
1927-1931	R B Caldwell
1931-1932	Dougall R Whitburn VK5BY
1932-1934	R D Elliot VK5RD
1934-1936	A O (Ozzie) Richardson
1936-1937	E A Barbier VK5MD
1937	Marshall F Holder (SWL) (April-August only)
1937 1939	Joe Kilgariff VK5JT
War declared 3 9.39 — all gear confiscated	
1945-1947	Ivor Thomas VK5IT
1947-1950	Hal Austin VK5BN (later VK5AW)
1950-1952	E A "Doc" Barbier VK5MD (LM)
1952-1954	Warwick "Pansy" Parsons VK5PS (LM)
1954-1956	Gordon Bowen VK5XU (LM)
1956-1958	John Bull ng VK5KX
1958-1960	Brian Austin VK5CA (LM)
1960-1961	Lloyd Br ce VK5OK (1 year)
1961-1963	John Haseldine VK5JC
1963-1965	Phil Wil iams VK5NN
1965-1967	Ross Dow VK5KF
1967-1968	Murray Burford VK5ZQ (1 year)
1968-1970	Tom Laidler VK5TL
1970-1972	John Allen VK5LL
1972-1974	Geoff Taylor VK5TY (LM)
1974-1975	Les Diener VK5NJ (1 year)
1975-1977	Garry Herden VK5ZK
1977-1979	Colin Hurst VK5HI (LM)
1979-1981	Ian Hunt VK5QX (LM)
1981-1982	John Mitchel VK5JM (1 year)
1982-1984	Bill Wardrop VK5AWM
1984-1986	Dick Boxall VK5ARZ

(L M = Life Member)

Other Life Members not included above —

Professor Sir Kerr Grant (died 13.10.67)	
Joe McAlister	*VK5JO*
George Luxon	*VK5RX*
Rob Wilson	*VK5WA*
Bob Murphy	*VK5MM*

Jenny VK5ANW, at the GPO display on 22nd May, coinciding with the release of the WIA's 75th Pre-stamped envelope.

Photograph courtesy The News & Sunday Mail

THE FLYING DOCTOR, PEDAL RADIO AND ALF TRAEGER

Ken McLachlan VK3AH,
PO Box 39, Moorooibark, Vic 3138.

The Royal Flying Doctor Service, the first service of its kind in the world, came into being in Queensland in May 1928. The Service was to provide medical aid in emergencies, comprehensive health care and community service to the people of inland Australia.

The Service was the 'brain-child' of the Reverend John Flynn — Flynn of the Inland — who was involved in missionary work for the Presbyterian Church's Inland Mission. When he began his missionary work in 1912, there were only two doctors to service large areas of Western Australia and the Northern Territory. Flynn realised that aircraft and radio would be a way of breaking the isolation of the Inland and also provide medical care for its people.

Photograph courtesy RFDSA

John Flynn.

It is felt fitting that some of the history of the perceptive gentleman who was the founder of the Aerial Medical Service, later to be known as the Royal Flying Doctor Service of Australia, The Very Reverend Dr John Flynn, OBE be documented with this article. He was born at Moliagul, near Bendigo, Victoria and at the age of 18, joined the Victorian Education Department for five years. This was not his calling in life, as he then served two years with a mission appointment for the Church, prior to enrolling to become a Minister. He was ordained to work in South Australia in 1911. In 1925, he was made a member of the Wireless Institute of Australia, 1933 saw him awarded the Order of the British Empire and in 1939 he was appointed Moderator-General of the Presbyterian Chuch of Australia, the peak of his career. He passed away on the 5th May, 1951.

When the Service first began on 15th May, 1928, there were no radio links, but it was realised a cheap, but reliable two-way radio was necessary. The unit would need to be easy to operate, need a range of around 500 km and be light enough in weight to make it portable.

This was a very large order in the days of the infancy of radio. Flynn spoke to many technically qualified men, but always received the same answer — it couldn't be done. However there was a young, inventive genious in Adelaide that was making generators and motors for a living, who was willing to accept the challenge. This was Alf Traeger.

Alfred Hermann Traeger was born at Glenlee, near Nhill, Victoria on the 2nd August 1895 and spent most of his boyhood on the family farm at Balaclava in South Australia. At the age of twelve he developed communications between the machinery shed and the house, using a home made telephone utilising pitch fork prongs, wire, tobacco tins and charcoal. This young innovator, was later educated at the Adelaide School of Mines, where he graduated as a Mechanical Engineer with distinction.

John Flynn had faith, so much faith in fact that he employed Alf on a salary well in excess of his own and within twelve months the first set was on the air. The initial set that Alf designed required the operator to crank a handle to provide a power source, which was to overcome troublesome batteries. As it was necessary to use Morse Code to combat poor radio conditions, this unit proved difficult to use for one person, by the time they cranked the handle with one hand and sent their message, on the key, with the other.

Photograph courtesy The Advertiser

Alf Traeger with a 1928 transmitter of the second type made.

The first successful on-air experiment was conducted from a nursing home in Alice Springs to another set at the Hermannsburg Mission, about 150 km west of the "Alice" and a third set (which didn't work) was positioned at the police station in Arltunga, about 250km to the east. Incidentally the Mission was among the first to receive a transceiver. Problems existed with the cranking method but Alf overcame this problem by equipping the set with pedals to provide power — hence the pedal wireless was born. These pedal sets were installed in remote outstations, and provided vital links with flying doctor bases.

The story goes that the Rev John and Alf drove into the Queensland town of Cloncurry, in early November 1928, which happened to be Melbourne Cup Day, to publicise a better model of their innovation. The ideal place to set up the demonstration was in front of the local hotel and as a local horse was running, a crowd soon gathered to see if the results could be quickly obtained. A transmission of over 4000 km was heard, the local horse won, the crowd that had gathered adjourned to celebrate, and two men were left with the set, knowing that they had succeeded in their venture.

Not to be forgotten in the pioneering days of what has become a service that has helped so many, is Maurie Anderson ex 5AM. Maurie, an ex-ship's radio officer, was employed in 1929, as the Radio Officer at Cloncurry, on the princely sum of six pounds per week ($12), where he served for ten years, before being transferred to open the base at Alice Springs. It is believed that Maurie was in everything and had a hand in transmitting weather reports to KLM Airlines when they were surveying the Europe to Australia air route. This man of boundless energy, prior to leaving Cloncurry, made an inspection and repair tour of many installations, which involved travelling in excess of five thousand kilometres.

The next improvement to the sets was the development of a keyboard transmitter that was first used in 1931, a typewriter which sent the correct Morse signals when the required keys were pressed. This eliminated the need to learn Morse code.

The demand for this form of communication grew and the quiet, unassuming amateur radio buff was to go on to open his own factory, Traeger's Transceivers, in Marryatville, S.A. and produced many other innovations during his long career, including a solar device that produced fresh water from salt water and at the age of 77, Alf designed a vehicle that was powered by a gas-turbine that generated power for electric motors connected to the rear wheels.

Around 1937, technology had developed to a stage whereby voice operation could be employed instead of Morse and more reliable batteries, with the use of vibrators, could replace the pedal generator. Alf's original transmitter at the base station in Cloncurry remained in service until the 1940s.

At the outbreak of WWII, his radios were extensively used for Military purposes and highly praised by the Commander in the Pacific, the late General Douglas McArthur. Alf, later in his career, was awarded the prestigious Order of the British Empire (OBE).

An AT14 war surplus transmitter was employed at the main base at Cloncurry in 1945, due to its higher output and in 1947 a new base at Charleville opened, using Alf's original Cloncurry transmitter, however

Photograph courtesy RFDSA

Reverend John Flynn and Padre Skipper Partridge talking from the outback to distant Cloncurry.

eventually modified disposals equipment was installed to improve the service.

Until the mid 1950s, all equipment was either AM or DSB but improved technology was beginning to show that the use of SSB would be more economical and practical. From January 1978, all communications have been converted to SSB.

It is interesting to note that the flying doctor works like any other medico. Each homestead is equipped with a medicine chest containing about 100 different medications which are all numbered and regularily checked. The diagnosis is made by radio and the patient is instructed what number and quantity to administer. Of course certain drugs must never be taken without the doctor's authorisation. An instant service with no waiting rooms, a boon to patients, particularly those in isolated areas.

It is interesting to note that it is now an around the clock, all days of the year service with a medico always on call. When the receivers are unattended and a signal is detected, an alarm is actuated that can only be silenced by the transmitter being operated.

Probably some statistics would be in order. The RFDS in 1984, flew 1177 people to hospitals and 34,877 patients were treated by the doctors belonging to the service. One can only imagine the number of lives that have been saved and the assistance that has been given since its inception.

If it were not for the radio section of the RFDS, many people would live in complete isolation. With the closest shop 200-300km away and the nearest neighbour possibly 100km down the track, no telephone, radio is the only form of communication. When the channels are not occupied for official traffic, such as sending telegrams, a certain time each day is set aside for a "galah" session. This is like an old fashioned chat over-the-back-fence in suburbia.

A gentleman who belonged to the fraternity of amateur radio enthusiasts, Alfred Hermann Traeger OBE, ex VK5AX/VK8XT, passed away on the eve of his 85th birthday, the 31st July 1980 in Adelaide. He will not be forgotten for his ingenuity, that brought immediate medical assistance within the scope of innumerable homesteads, sparsley spread across the arid inland of our vast country and was the forerunner of School of the Air and other communication necessities. It was estimated that 30 stations were existent in 1934, today it would be in the thousands.

Again it can be seen that amateurs have made a substantial contribution to the development of meaningful communications in this country

References:
Health Be In It.
Royal Flying Doctor Service of Australia. Volume 8 (Queensland Section)
Australia's Who was Who.
The staff of Latrobe Australiana Library.
The staff of Lilydale Municipal Library.

AR

Photograph courtesy The Advertiser

Alf Traeger and a later model Pedal Wireless. The photograph was taken in February 1963. Twenty of these sets were sent to the African Flying Doctor Service by Treager.

Photograph courtesy RFDSA

Reverend Fred McKay using one of the portable transceivers.

HOW'S DX

Ken McLachlan, VK3AH
Box 39, Mooroolbark, Vic 3138

At the expense of receiving a mail box full of letters with differing opinions, I am going to make the statement that all DXpeditions to be recognised, should get accreditation by submitting visas, operating permits and relevant information to the ARRL or another accredited body acceptable to the ARRL's impeccable standards, for endorsement that their efforts will be recognised, prior to proceeding on a costly jaunt to themselves and numerous QSL cards that are sought by amateurs and SWLs and if received by reasonable expense to the recipient, are proven to be valueless.

I am sure that this would deter quite a number of "pirates", allow adequate publicity in time for deadlines of all DX orientated magazines and allow a far better return of QSO's to the expedition, which would assist them in donations of equipment and expenses.

It is appreciated that in some cases it is hard, but not impossible, to get documentation in advance at the beginning of the planning stage. This would be easier and less costly to all concerned and even it would probably benefit the DX net controllers in preparing their lists, in some cases those on the list would know the station that they were in the running for!

Think about it, the serious DXer has many cards that are quite attractive but completely valueless and they have cost a lot of time, frustration and money to acquire. Would tentative accreditation from a country's licensing authority, validated by documentation that the operator or operators did actually transmit from that much valued location, benefit the hobby and the pockets of all concerned? I think it would — what do you think?

HOLIDAY JAUNT

Ernie VK3DET, ex 3D2TN, 5W1DW, A35TN and ZK2BB, and his charming XYL Kim, are taking a holiday jaunt around the Pacific. Their itinerary includes operating as ZL0ACP from the 19th to the 22nd of November and as A35TN from the Kingdom of Tonga, Kim's home country where they were married in 1982, from the 25th of November until the 3rd January next year. It is not an expedition but a holiday and Ernie hopes to get on all bands as much as possible. QSL in 1986 when they return to Ernie Turner VK3DET, 1008A Armstrong Street Nth Ballarat 3350 Victoria. Happy holidaying Ernie and Kim.

INDIA

If you think you have hassles, read this, as they may seem infinitesimal to those of a couple of VU amateurs. One amateur had a gift external VFO and microphone sent to him in July 1984. He has sent registered letters to the appropriate authorities in September and October last year and in January and March this year. So far no reply and of course, he has not sighted his equipment.

The other amateur apparently revalidated his licence in 1983 and despite several reminders, has not as yet received the paperwork.

A RECORD?

Apparently veteran CW operator Jack VK2KQ, when a telegraph operator at the Tamworth Post Office, was told to stand by at about 9.30 am in the morning as a message was coming through from Burren Junction concerning a murder case.

Jack sat at the sounder until 7.15 pm that evening, until there was a change of operators, taking the traffic at 25 WPM. Apparently the message was in excess of 15,000 words. Some effort! How many operators could stand the pace in the '80s? Being honest, I know I couldn't even in speech let alone CW.

Can anyone beat Jack's "record" — either commercially or on an amateur basis? And I wonder if Jack, at that time, wished that Samuel Morse had stayed a painter, instead of becoming an inventor.

Adapted from WESTLAKES Amateur Radio Club Newsletter, July 1985.

SAO TOME

Where is it, many amateurs are asking. The easy answer is 0 degrees 10 minutes North and 7 degrees East and West of Libreville in the Gabon. The area of 960 square kilometres consists of the main island, Sao Tome with its capital being the same name, the second island Principe and four other small islands. From the middle of the 15th century, except for one hundred years rule by the Netherlands, the area has been colonised by Portugal, until a transitional Government was installed on the 21st December 1974. The Principe of Sao Tome gained its independence on the 12th July 1975.

The population was estimated to be about 115,000 inhabitants in 1980 and its main export for the last 150 years has been cacao, which was forced on them by the Portuguese rule, with 90 per cent of the area being under cultivation. The seeds were exported and items such as wheat, rice and other necessities were imported.

Since independence, the islands have become economically unstable, as the former landholders "tore" up the ownership documentation for the cacao plantations, leaving the farmers with a decreasing market, no technology or chemicals to assist the already old plantation trees. Financially ruined, parts for equipment and automobiles that still do exist are unobtainable. Their exports tumbled dramatically and are still dropping according to the latest figures available, which are quoted in sterling, was 494,000 pounds in 1982 which dramatically dropped to 218,000 pounds in 1983. Their imports also reflected the dropping export revenue, as in 1982 the value was 1,510,000 pounds with a drastic drop to 218,000 pounds in 1983.

In spite of the financial problems being encountered, the islands are abundant with many kinds of fruits including bananas, pawpaws and mangoes. The area is rich in sea foods, but as the President, Dr Manual Pinto de Costa, has said "Everything can be harvested, but we have no equipment to cultivate and fish." Education is a high priority on the government's agenda, and school attendance is deemed to be 100 per cent at the elementary level and all graduates of high schools receive their certificate plus a scholarship to continue studies abroad.

Luis or Luiz as perhaps it should be, S92LB, who has been licensed for some twenty years, and his XYL Berta are thought to be partners in the business of the Luiz and Jonseca Company, which apparently is a trading company from all reports. His former transmitter was apparently confiscated and now he uses a TS 520 and dipoles.

By reports from overseas newsletters, he is rather prompt in returning cards. Good luck Luiz and Berta, and may you be worked by all those that need you for a new country, particularly in the Pacific, and not the chosen few who trade on "male rates".

CLUED UP "PIRATES"?

It is felt that 5A1AB, not an April Fools prank in bad taste, does exist, even if it is only a figment of the operator's "brain". But this brain evidently has some "grey matter" even if it is channelled in the wrong direction. He gives his QSL information as G4UZO. G4UZO is not listed in the 1985 International Call Book and the RSGB Call Book's notation alongside the call is "Particulars withheld at licensee's request". In other words, someone has done their homework!!

Another similar case is that of 7O2PP, heard in Europe quoting "WB0IDO" as his QSL route. "WB0IDO" does not appear in the current International Call Book either!!!

PETER THE FIRST ISLAND

Well this island has a high chance of being operated for a period of 24 hours in late December or early January. (What a Christmas present!)

Apparently a Japanese fishing vessel will be going near the island and is willing to take Jin JF1IST, along. Jin will have to remain with the vessel for four months and will have to go ashore alone in a rubber boat, if the schedule comes off. The fishing vessel will wait only 24 hours in the vicinity and, as mentioned before in this column, the landing conditions are very hazardous on this island. If Jin makes it, there will be no elaborate antennae (which has to be dismantled and removed before he leaves either by transporting it back to the "mother" ship or casting it into the sea), as the Norwegian authorities have decreed that nothing must remain on the island.

Jin, if it comes to fruition, every good wish for your welfare and if you make one QSO, congratulations, as in my book you are a very brave and determined amateur and the thoughts of all DXers go with you. If the plan goes as scheduled, the QSLs will be handled by Suzuki JR1HHL, who is not noted in the 1985 International Call Book.

MOUNT ATHOS AGAIN

Does any DXer remember Don Read WB1GDQ, who created the impression that he was on San Felix as KF1O/CE0X. (Refer AR September 1982, p30.) Well, Don also has the calls SV0BV and G4VGO attached to his name.

Don has been heard on air signing SV0BV/A expounding the fact that the monks were providing wine and cheese one afternoon. He was challenged by another SV amateur that it was a "commercial venture" but Bob, always with a reply, said all IRCs were being donated to the Holy Community. Many other operators would not work him and he packed his base and went home from wherever he was.

Is this another "Mission Impossible" for Don Search at the Newington Headquarters? My advice is to let us see if this was a genuine operation, before we commit any IRCs to charity or otherwise!! For the record QSL to G5VS.

My impression of Bob, with apologies to Luis CE3IW.

THAILAND AND BANGLADESH ACTIVITY

Apparently Jonas HS1SD, is the only active station from this country at the moment and it is believed that he is a high-ranking Police Officer. Apparently there is no ban as such on amateur activities, as the Minister of Communications lifted it in January this year. Meanwhile another school of thought is that amateur examinations are due to

be held soon and the Thai authorities will allow the Radio Society to issue the new call signs and all will become active at the same time. We hope so, as the hobby in this country has been in a "grey" area for some considerable time now

No genuine operations out of S2 except that Saifud, President of the Bangladesh Amateur Radio League who has done so much to promote the hobby in his homeland, recently passed the British examinations. He hopes to be active from his Middlesex home shortly Congratulations Saifud.

NEW COUNTRY????

Many JA operators believed that BT0NMN, being in the Tibet Autonomous Region, could be a new DXCC Country It is thought that this station and BY0AA are located in an area that is administered by a local government, which is quite separate from the Beijin administration and the People's Republic of China. Incidentally BY0AA is in the much sought after Zone 23.

Meanwhile, many more BY stations are becoming active!

UNUSUAL NETT

Rainer DL1BEI advises of a net that may be of interest to some of our readers. The net is run at 0500UTC each Wednesday on 14.300 MHz +/- 10 kHz using the "Platt" dialect. It appears that this dialect is a mixture of the Dutch, German and Belgium languages.

GU DXPEDITION

The Guernsey Amateur Radio Society with the support of the RSGB Committee is sponsoring an under 18 DXpedition from the 19th to 27th of this month, to allow participation in International Youth Year. They hope to become involved in the CQ WW DX Phone Contest. If they are heard, it would be worth a call, to make the organisers' hopes of promoting these young members of our fraternity with familiarity of better operating skills and widening their horizons with the use of the hobby they have chosen.

GUERNSEY

The DAGOE (Dutch Amateurs going on Expedition) will activate this DXCC Country under the call PA0FAS/GU0 from the 23rd to the 30th of this month. The operators PA0FAS, PA0TUK, PA3AWW, PA3CJF and PE1FNB will activate 160 through to 10 metres, on both CW and SSB including the WARC bands. Equipment that will be pressed into service includes a TS820, TS930, L4B, L75B into a beam for the high bands and dipoles for the lower end of the amateur allocations.

They hope to participate in the CQ-WW Contest and all QSLs are via DAGOE, PO Box 358, 3300 AJ Dordrecht or via the PA Bureau.

NEWS FROM GUAM

Ed KB6DAW/KH2, from his prime position in the Pacific has been getting his share of some good DX Ed has worked SU, 7X and HV on the Rare DX Net with Zedan JY3ZH This net is at 2100 UTC on the frequency of 14.224 MHz. Other stations heard have been 7X5CYK, A92EM, KX6DS, TA1A and TA1E

Kimsan XU1SS is being heard, but when she reappears consistently, YB0BZZ and Ed are organised to assist in running some traffic for her Another station that has been inactive is RF0FWW with his Net on Wednesdays at 14 195 MHz. His problems have been of an equipment nature

Unfortunately Ed's trip to Johnson Island has been cancelled but the trip to Wake Island has been approved for the 22nd of this month until the 4th of November. That period covers the CQ World Wide DX CW Contest. Call signs to look for are KB6DAW/KH9 for CW, NY6M/AH9 for SSB and KB6DAW/NH9 for the contest only All QSLs for the expedition are via KB6DAW/KH2, Edward Campbell, 300A Rendova, APO SF 96334, USA.

Ed has been asked to activate some VK and ZL stations to look over towards the South America's around 2200UTC on 14 338 MHz where the "Confusion Net" is run.

Good luck with Wake Island, Ed, and we hope to work you.

DXCC AND ALL THAT!!!

The ARRL DX Advisory Committee has voted 15-1 to amend the Country Criteria Rule 5b to read as follows:

"The following will NOT be eligible for consideration as a separate entity from the host country: Embassies, consulates and extra-territorial legal entities of all nature, including but not limited to monuments, offices of UN agencies and related organisations, nor other intergovernmental organisations, diplomatic missions, etc."

Well not being a "Legal Eagle", I feel that this will be the curtain call for 4U1VIC and maybe others if it is adopted by the ARRL desk. More aspirin or maybe something stronger for Don Search, who holds the responsibility for the DXCC administration!

HELLO — GOODBYE

The last Willis Island changeover went smoothly and at departure time both crews were full of smiles as this picture shows. Note the dish that many amateurs would like in their back yard!

with the Swiss Embassy in Accra, the hobby is absolutely forbidden ** YIs will soon have their own personal call signs but will be limited to operation from the club station. ** 70 might be active in the near future. ** Watch for JY50 stations in November and there could be an award. The special call is to celebrate the birthday of JY1, His Majesty King Hussein. ** XF4MDX had only 5386 QSOs during their jaunt, the propagation was so bad due to a solar storm prior to arrival that only nine stations were worked from Europe 2 and 7 on forty and twenty metres respectively

HEARD AND WORKED ON THE EAST COAST

80 METRES

1Z9D, 3A2TO, 4U1VIC, 5N3RTF, 5Z4DU, 5Z4EQ, 7Q7LW, 9J2BO, 9K2YA, A22DP AH2AN, AH9AC, AL7L, BY1SK, C21DX, DU1DBT EA6BH, FK8FF FG4CB/FS, FT8XB, G3EDM G8OXN H44HA, HL1AFR (YL), HL9AA, HL9JJ, I5ICI YL I5YBZ (YL), JY3ZH JW6VDA, K1CTK/TU KA6KKN (YL), KC6HA KC6JC KD7P/KH4 KL7JJB. KX6PO. N6DOC (YL), OD5QS, OH0RJ, OX3BJ PA0ALO, PJ2HB. S83H, SP4LEN, SV1OL T30AT, T30BY, TF5EP, TF6GW TI2CCC, UG7GWS, UL8FWE, V2AZM, VE7CBK (YL). VE7YL (YL), VK0GC, VK0YL (YL), VK2BCH/LH VK9LA, VK9X9, VK9XG, VK9ZB, VR6JR, VU2KAJ. YJ0RG Z21BP ZK1JK, ZL2BAD (YL), ZS2OM, ZS6AIS

L to R John Goonan—OIC*, Neil McArthur—O+, Brian McGurgon—OIC+, Kim Briggs—VK9ZB; RTO+, Chris Frisby—O*, Gaye Wooley—O*, Owen Anderson—O+, Peter McLennan—VK9ZR, RTO*.
KEY: OIC denotes Officer in Charge, O = Weather Observer, RTO = Radio Technical Officer, * = Outgoing crew and + = Incoming crew.

Photo supplied by Peter Barclay VK3FR.

BITS AND PIECES

The prefix OJ0 is no longer issued for Market Reef, so if you want this country, watch for any call signing /OJ0. ** UA8T is active from Oblast 174. ** Who was "YA7FPB" and "3Y3W"? Perhaps some psychologist may be able to elaborate! ** Lothar 5T5SL, will be QRV until the end of this month as will VR6JR. ** It is sad to relate that the XYL of 1Z9A was killed by a sniper in the Karen State. ** Kim VK9ZB, quite active from Willis Island and is also on 6 metres, particularly looking for VK contacts. ** Irma OH6MA, a well-known YL DX operator including being a member of the recent JW5E operation, was active from the Maldives as 8Q7MA. QSL via OH2BH ** 4J0F was an operation from the USSR-owned Kuril Islands that lie between Kamchatka and Japan. ** Steve VK2PS, received 18 USSR cards in the last batch from the Bureau. Someone still listens on the bands! ** It is believed that OK2BKH is at the QTH of XZ2HN, but it is impossible to obtain the correct authorisation to operate amateur radio. ** Feng, ex XW8BP apparently has been allocated the call BV2EA. ** Apparently why WB0IDO is not in the International Call Book is that the call isn't issued. ** According to HB9TK, who is employed

40 METRES:
AL7FG (YL), CE3FTV CP6NU. CT1FL. CE1HBI, CT2CO, CP5LE EA4FL. EA7AYD, EA8TH. GI3OQR, GW4BKG. GW4OFQ. HC5E. HC5EA, HH7PV, KA8GVS/KH2 TI2KD YV6BJG. VE6QU. VI5JSA VK0GC, VK2BCH/VK9LH VK9ZB VR6AB, ZK1WL. ZP7CO.

80 METRES:
VK0GC, VK9ZB, ZK1WL

QTH INFORMATION

9Y4SA — Try PO Box 595, Port of Spain, Trinidad, West Indies
CE0ZU PO Box 1, Easter Is via Chile
ET3PG — Bekele Asfaw, PO Box 22978, Addis Ababa, Ethiopia.
J6LPT — PO Box 195, Castries, St Lucia.
JT1AO — PO Box 844. Ulan Bator 13, Mongolia.
TA1C — PO Box 188, Istanbul, Turkey
TA1D — PO Box 1167, Instanbul, Turkey
TA1E — PO Box 794 Istanbul. Turkey

KA4JRY/TT8 C/- 335 Jackson Av, Satellite Beach, FL 32937, USA.
N3DLO 2804 Spencerville Rd., Burtonsville, MD20866, USA.
OX3HX PO Box 22, Godthaab DK 3900, Greenland.
PY0FNI PO Box 441,, Recife, 50000. Brazil.
S92LB Luis, PO Box 147, Sao Tome.
SV0AH PO Box 66, Rhodes, Greece.
SV0DH PO Box 282, CR-85, 100, Rhodes, Greece

S79CW PO Box 4, Mahe, Seychelles.
T40PAZ PO Box 1, Havana 10, Cuba.
T42AL PO Box 10, Havana 10, Cuba.
TA1E PO Box 794 Istanbul Turkey
TI1CUR PO Box 84, 2050 San Jose, Costa Rica.
TR8PC PO Box 177 Libreville, Gabon
TT8CW PO Box 70, 91605 Savigny Cedex, France.
VK75A WIA, 412 Brunswick St, Fitzroy 3065, Vic, Australia
XX9WW PO Box 922, Macao.

QSL MANAGERS

5X5BD DJ5SI, 5X5WR DJ5RT, 5Z4DU KF4DA, GB0XN G 3YMT KC6JC KC6JC ZC4ZN PA0GMM, ZD8LA G40FY ZK1WL,ZL3AFH

THANKS

Sincere thanks go to the following: the editors of weekly bi-weekly and monthly newsletters including the ARRL NEWSLETTER CQ-QSO, DX FAMILY FOUNDATION NEWSLETTER, JAN and JAY O BRIEN S QSL MANAGERS LIST KH6BZF REPORTS LONG ISLAND DX BULLETIN, LONG SK P NEWSLETTER of the NATIONAL INSTITUTE OF AMATEUR RADIO HYDERABAD OLD MAN. QRZ DX. RADIO AMATOOR RSGB DX NEWS and WESTLAKES AMATEUR RADIO CLUB NEWSLETTER Magazines including: 73 for Radio Amateurs, BREAK IN, cqDX, JA CQ, JARL NEWS, KARL NEWS QST, RADCOM and VERON

Members who have contributed include VKs 2PS EBX 3FR, Yu YL and G3NBC Overseas amateurs include DL1BEI, G1EOD. PA0GAM and ZL1AMM Sincere thanks to one and all, happy DXing and Intruder Watching. AR

WE'RE A WEIRD MOB

The WIA Victorian Division financial accounts underwent their annual audit, but an item called "Security" had the office-bearers puzzled

Was it an over ooked expenditure for the Wireless Institute Centre (Vic Div HQ) — doorlocks or someth ng!

No, t turned out to be postage and other expenses for the Intruder Watch Co-ordinator

The Auditor not know ng about Intruder Watch, thought it would be more appropriate to list the item as Security.

I suppose he's right — for without IW our exclusive amateur bands would not be secure.

Contr buted by Jim Linton VK3PC AR

ALARA

Australian Ladies Amateur Radio Association

Margaret Schwerin VK4AOE
114 Bunya Street Dalby Qld 4405

I am privileged to be given the opportunity to write this month's column

The 27th July was the day chosen by YLs in four states to meet in celebration of the 10th anniversary of our Association

In VK5 15 ladies met for a luncheon in Adelaide, 10 of whom were members and included Marlene VK2KFQ. Such an enjoyable time was had by all that it was generally agreed to give consideration to making the luncheon an annual event

And, I won't reveal the identity of the YL who, arriving late, hurriedly placed her car in a car park and when she returned found the gate to the park securely locked until the evening!

Fifteen ladies and six men, plus several members of the Redcliffe Radio Club who called in to say hello, joined in the VK4 celebrations, which were held at Redcliffe. Josie VK4VAN did all the organising and the result was a highly successful, first ever ALARA function in Queensland The Redcliffe Radio Club very kindly provided afternoon tea, which Josie prepared with the help of Beryl, wife of VK4UG, Elsie, wife of VK4NBL and Josie's daughter Roxanne (John VK4QA would never forgive me if I used the term XYL) We were happy to welcome Darleen WD5FQX, Bev VK6DE and Brian VK6AI, also John VK4QA, President of the Queensland Division of the WIA

Bev and Brian, who were touring the eastern states, 'just happened' to be in the vicinity of Redcliffe. Good planning Bev! Darleen, with daughter Diane, spent a few days with Wendy VK4BSQ and family, on their boat. She is the International Membership Chairman of YLRL and is looking for Australian YLs who would like to be sponsored into YLRL. Any ladies interested, please contact Jessie VK3VAN, who will pass the information onto Darleen

The VK4 festivities were wound up with 15 staying on for tea at Antony s More news on the functions in other states next month

During July, I was interviewed on the Television Channel 10-4-5A 'Here Tonight' programme The topic was ladies in amateur radio. The on-air showing was very brief but, judging by the many comments I have heard it was very well rece ved

The results of our birthday contest have been received from Marlene VK2KFQ. The winner was Kim VK3CYL, who was awarded the mystery prize — a crochet centre designed to commemorate ALARA's 10th Anniversary The very close runner-up was Gwen VK3DYL, who received a consolation prize Thank you to all who partic pated

Apologies to our hard working editor Marlene VK5QO, who was omitted from the list of office bearers published in August s AR. Marlene is responsible for publish ng our quarterly newsletter and does a fantastic job. Additions to the committee are

VK2 State Representative — Bobby Ohare VK2PXS
VK5/8 State Representative — Meg Box VK5AOV
VK7 State Representative — Laura Tucker VK7NYL

Welcome to new members Jan VK3NCA, Judith VK3NYL, Betty KG6C and Joanne N6LFZ and a welcome back to Siegi VK4VSF, Helen GM4KNQ and Doris N5CFP Last, but certain y not least is congratulations to Dorothy, who has changed her ca l sign from VK2NVQ to VK2DDB

VK75A was activated by Connie VK4ATK on 12th August Val VK4VR plans to air this special ca l s gn on 11th November so do look out for her 33 73 88 Margaret VK4AOE

AR

HISTORICAL STRAYS — AT HOME AND ABROAD

Alan Shawsmith VK4SS
35 Whynot Street, West End Qld, 4101

The Canadians, who were part of the USA progressive scene, possessed a certain advantage over the r Down Under cousins in early days; information on the state of the art reached them more quickly than it did us — nevertheless, VKs were never far behind, and n some cases ahead.

The AOCP l cense came into being in Canada in 1919 and n VK in 1925

The first VE Broadcast MW voice transmission also occurred in 1919. Two amateurs with the call s gns 3GX and 3IG (the VE prefix was not then in existence) combined to transmit the human voice (no mention was made of music) from a homebrewed station they called KDKA. The antenna used was a long trolley wire 'obtained' from a nearby railway yard and strung between two high structures.

In Australia, one of the f rst amateurs to set up a MW sound Broadcasting Station was Tom Elliott using the call 4CM This took place from the top of the Queensland Insurance Building, cnr, Adelaide and Edward Streets, Brisbane in 1920.

Amateurs on both sides of the Pacific threw up makeshift antennas using all sorts of wire — but the sky hook erected by Canadian Graham Peacock 3SI deserves a mention It was a roll of phosphor bronze wire which was so thick, tenacious and non-pliable that he had to borrow his Dad's team of Clydesdales in order to unrol and straighten it out. It was used for MW experiments. One wonders how he managed to get it up into the air

The ubiquitous 210 tube used in thousands of transmitters around the world originally cost $13 50 in VE land in the 1920s — this was more than the average man's weekly wage

In the quest for a triple ton, ie 300 countries worked, most avid DXers would eventually QSO St Paul Island, off the Canadian east coast Contacting this rare spot is really nothing new as it was first activated by Syd Young (VE)1EO in 1926. The power used was 100V at 10mA (or 1 watt input). Much DX was accomplished

In the early thirties, when living on the shores of Moreton Bay to the south of Brisbane, Roy Jonasson VK4NG pulled off some remarkable QRP DX feats to NZ and USA. Also locally he worked into VK2 on phone, on more than one occasion using 15 volts and less on the transmitter plate His antenna was an end fed Zepp some 60-70 feet (18-21 metres) up.

In the late thirties, Harry VE3IT, operating from Toronto, worked several VE west coast stations (about 3000 miles 5000km) using 5 watts with the antenna lying on the floor.

W Wright of Winnipeg, Canada (call sign not known) homebrewed his 700V power supply r 1925 The transformer made so much noise it had to be suspended by rope under the operating table When placed on the floor it made the whole room vibrate. In spite of this, it worked successfully

Can any Aussie beat this? Motor ng through lonely country out of Buffalo, Canada, in a model T Ford in the year 1922, amateur 8AI (name not known) became lost. *What to do next?* Ingeniously he found a length of wire weighted it at one end, threw it over the nearest tal tree and connected the other end to a spark plug on the model T motor (It is not known if the wire was 'borrowed' from a nearby fence or carried in the car) He then cranked up the motor, set it running at a good rev and keyed the sky hook at the spark plug connection Another experimenter some miles distant heard and rep ed to his call for navigational help. It is reported that the QRI transmitted by the model T was something shocking, nevertheless it served the purpose. The type of receiver used is also not known but it would have been necessary to stop and then recrank the motor each t me in order to transmit, a laborious, exhaust ve business — but then desperate situations require desperate measures!

Acknowledgment for part of the above Canadian information is from the book titled 'From Spark to Space' published by Saskatoon Amateur Radio Club VE5AA 1968 AR

VHF UHF - an expanding world

Eric Jamieson, VK5LP
1 Quinns Road, Forreston, SA 5233

All times are Universal Co-ordinated Time and indicated as UTC

AMATEUR BANDS BEACONS

FREQUENCY	CALLSIGN	LOCATION
50.00	5H44H R	Homara
50.008	JA2IGY	Mie
50.075	S6SIX	Hong Kong
50.109	JD1YAA	Japan
5 .020	ZL1UHF	Mount Climie
52.033	P29BPL	Loloata Island
52 100	ZK2SIX	Niue
52 200	VK8VF	Darwin
52 250	ZL2VHM	Manawatu
52 310	ZL3MHF	Hornsby
52 325	VK2RHV	Newcastle
52 370	VK7RST	Hobart
52.420	VK2RSY	Sydney
52 425	VK2RGB	Gunnedah
52.440	VK4RTL	Townsville
52.450	VK5VF	Mount Lofty
52 460	VK6RPH	Perth
52.465	VK6RTW	Albany
52.470	VK7RNT	Launceston
52.490	ZL3SIX	Blenheim
52 510	ZL2MHF	Upper Hutt
144.019	VK6RBS	Busselton
144 410	VK1RCC	Canberra
144.420	VK2RSY	Sydney
144.465	VK6RTW	Albany
144 565	VK6RPB	Port Hedland
144 480	VK8VF	Darwin
144.800	VK5VF	Mount Lofty
145.000	VK6RPH	Perth
147.400	VK2RCW	Sydney
432.057	VK6RBS	Busselton
432 160	VK6RPR	Nedlands
432 420	VK2RSY	Sydney
432 425	VK3RMB	Ballarat
432 440	VK4RBB	Brisbane
1296.17	VK6RBS	Busselton
1296.480	VK6RPR	Nedlands
10300.000	VK6RVF	Roleystone

SIX METRES

Whilst we have had to be content with the occasional opening between the various states during the winter months, some activity during the northern summer Es season is reported in 'CQ ham radio' from Japan, per courtesy of Graham VK6RO. Japanese stations have been working FK8EB, DL1CF, HL1SB, as well as quite a few VKs 4, 6 and 8 stations, mostly around the end of April. It is interesting to note their reception of XX9LT on 50.110, which is listed as a beacon. My lists do not state the location with that prefix, although I note Kampuchea is XU. My Japanese is not good enough to decipher further details, but it was heard on 28/4 at 1130 by JA2GHT and again at 1928 by JR2HCB.

SIX METRE STANDINGS

I was very pleased to receive a superbly prepared list of stations and countries worked on 6 metres from Graham VK8GB. The list arrived too late for inclusion in the August issue, but will be included in the February 1986 listing. I will tell you this much too, that it will be the top number with 39 countries confirmed! I will leave further details until later as I want to make a feature of this entry, but suffice to say that it includes a photocopy of the front and back of each appropriate QSL card, the list is meticulously prepared and typewritten, and the whole bound into book form. Thanks for all your trouble Graham, I had been hoping you would eventually send me your list. I now hope we can hear from others, particularly in VKs 2, 4 and 6, who must have some impressive totals too. I am sure Bill Tynan W3XO, of 'The World above 50MHz' in QST, will be very interested in this submission.

EME ACTIVITY

Doug VK3UM still keeps bringing them in on 70cm EME, although the last EME weekend on 20/7 produced some very good signals, there did not seem to be a lot of stations on. At 0138, VK3UM worked K5JL exchanging 0/0 reports, 0155 VE4MA 449/449 and 4x3/4x3 SSB, 0700 DF3RU 449/449 and 4x3/5x4, 0744 DL9KR 459/559 and peaking to 569, and 5x5/5x5. Doug said this station was the strongest signal he had ever heard, equally as good as some of the Canberra stations he has been working on aircraft enhancement! They chatted for half an hour and Doug said it was as good as a telephone and cheaper! At 0810 G3LQR 449/449, 0830 DL2CJ 4x3/4x3.

On 21/7: 0000 VE3CRU (sched) 439/339, 0300 WB0TEM 449/449 (sched), 0042 N4GJV 4x3/4x4, 0100 N7ART 0/0 (sched), 0155 VE4MA 449/549, 0722 JA4BLC 449/439, 0815 DF3RU 449/0, 0845 F1FHI 449/449, 0942 to 1022 OE5EFM 0/0 — this one was a real battle, due to Faraday rotation, but with perseverance the contact was made.

There was a lot of very good signal reports in the above list, so it indicates a good set of conditions. Incidentally, the first signal report is that sent by Doug and the second is what he received. All contacts not marked with (sched) are random QSOs, either by being called or tuning around!

And while we are on the subject of EME, you are reminded that the ARRL EME Contests will be held on the 23rd and 24th of November and if you have a reasonable 144MHz setup, particularly if using a masthead preamp, you should have a chance to hear some stations, particularly those with good OSCAR systems with the ability to elevate the antenna.

If you would like a computer printout of azimuth and elevation for your location so you may see what you can hear, then I repeat the offer made by Chris VK5MC of Hatherleigh, SA. 5280, who is prepared to send you such a printout if you will send him your latitude and longitude, and enclose a LARGE stamped, self addressed envelope. But don't leave it until the last minute, Chris does have to do work around the farm to enable him to eat, so be fair and get moving straight away, if you have not already done so.

THE ROSS HULL CONTEST

As VHF/UHF operators know this is an annual contest in memory of the late Ross Hull, a keen exponent of the art, and will start again this year in December and end in January. Please keep your eyes on the Contest pages of AR for the opening and closing dates.

The Federal Contest Manager, after each year's contest, receives some logs and quite a few complaints about the conduct of the contest, particularly in relation to the points score. The Victorians argue that the Western Australians have it too easy and the Western Australians say they are too isolated when compared with the ease and luxury of close distance contacts from Melbourne to other parts of Victoria and to Tasmania and therefore deserve some special considerations.

It has been long known, that for a country as large as Australia, it will never be possible to make a VHF/UHF contest which is fair to everyone, something which is not too hard to obtain in HF contests. That the rules of the Ross Hull Contest change so frequently is evidence of the pressure placed on consecutive contest managers by various groups and an honest attempt to appease those who are often quite vocal and to be fair to the greatest majority. No one denies the large amount of effort it requires to build and finally operate equipment on a multitude of bands and there have been very commendable efforts to do this in both WA and Victoria. At the same time, those who operate only on, say, 6 and 2 metres, often do not submit logs because they realise they have no hope against the multi-band stations, yet they form the backbone of the total number who do operate during the contest, and it must be agreed there is quite a high level of overall activity during the Ross Hull, particularly on 6 metres and to a reasonable extent on 2 metres, but this would not be reflected in the number of logs submitted.

Without going too far into the politics of which camp is the right one to promote (multi-band against two/three bands), a subject which could be the source of a separate article for AR, which I may consider initiating later, for the time being, the important thing is to keep the contest going while we once more look at the problems in depth. I would like to advocate therefore, that as many as possible submit a log to the contest manager for the next contest in December, and when submitting your log, give your thoughts on the subject in as much detail as you can, with the aim of such material eventually being looked at by both the contest manager and myself in the first instance, with the aim of getting details of any forthcoming proposals or changes into AR for comment early in the year, rather than it should start being aired as the time for the next contest arrives. One would see the ultimate aim of any such deliberations eventually involving representatives from WA and Victoria in particular, so through these columns I am prepared to keep the matter open and before readers on a continuing basis while sorting out what can be done for the best interests of all participants and for the memory of Ross Hull.

For a start, I am prepared to raise my level of participation to the highest possible and will submit a log. I hope there will be many more of you doing the same thing. I repeat, it is important to keep the contest going for the present, while we again see what can be done to help it, and support needs to come on a continuing basis from the multi-band operators as well as the less well endowed stations. In other words, let us maintain the status quo for this year and make a concerted effort to arrive at some worthwhile decisions. I am prepared to foster the idea in conjunction with the contest manager who at the moment has been threatening to close up the contest, due to lack of log support, but I would see this as a great pity, so it will be up to all of us to be rational and fairminded in our approach to a problem which will not be easy to solve with the best of intentions. I seek the support from all of you, particularly during the next twelve months.

A WOODPECKER ON 427MHz

The July 1985 issue of 'The West Australian VHF Group Bulletin' contains an article headed like that, and the article, together with the additional article by Don Graham VK6HK on the subject should be prescribed reading for those who have an interest in our hobby and the 432MHz band, in particular.

"SYLEDIS is the French acronym for (Lightweight Range Measurement System). It is designed for use over water at ranges up to 150km. A transponder is mounted on the vessel and a network of responding beacons is erected at accurately determined places onshore. When interrogated a beacon emits a long pulse (5300 microseconds) of UHF which is digitally encoded as two megabits/sec. This is correlated and digitally filtered by the transponder to give a continuous readout of distance from each beacon, and hence location.

"The absolute accuracy of SYLEDIS in measuring range is three metres up to 80km, deteriorating to about 12 metres near maximum range. The band chosen by SYLEDIS was 420-450MHz (primary allocation radio location, secondary amateur) because 'It offered a very good compromise between the relative spectral occupation of the transmissions and the quality of long distance propagation. However there have been problems in extending the range of SYLEDIS, the main one being 'super-refraction', better known to other occupants of the band as 'ducting'.

"Efforts were made to reduce the spectrum occupation and spurious emissions by using a high quality interdigital filter. This resulted in a bandwidth of 2.5MHz at 20dB. Without the filter, the bandwidth would be 70MHz ... 'which would be considered intolerable for radio authorities of many countries' (!!)

"The following article by Don Graham VK6HK shows how a total lack of consultation has enabled SYLEDIS to blow a hole in the primary amateur TV location like an Exocet (another product of French ingenuity, encountering a 'large naval object' in the Gulf War"

SYLEDIS INTERFERENCE TO 425-432MHz TV

"ATV operators in the Perth suburbs of Victoria Park, Balga, Wembley Downs and Melville have reported severe interference to Amateur Service Television transmissions over the past month (approximately), when using the WIA recommended primary television channel (Vision carrier 426.25MHz, Sound 431.75MHz).

"The interference has been traced to the installation of a chain of at least five pulsed beacons along the coastline, north and south of Perth and Fremantle, all operating on the same nominal carrier frequency of 427.3MHz (approximately). The bandwidth allocated is 2.5MHz, fast rise time pulses being transmitted, at a PRF of 25Hz.

"Enquiries with the Radio Frequency Management Division of DOC (Mr B.R. Field) have confirmed the presence of the system and established:

"(a) The system, known as SYLEDIS, has been installed as part of elaborate navigational preparations for the 'America's Cup' series and will operate 24 hours a day until 1987. The State Government have also expressed interest in retaining the system indefinitely thereafter.

"(b) The present frequency was allocated, in principle, to SYLEDIS several years ago, but no consultations were known to have taken place with the Amateur Service as the Secondary Service.

"(c) The existence of WIA Band Plans as an indicator of the key interest by the secondary user, or as an indicator of the impact of frequency allocation decisions, was not known or taken into account by the DOC Head Office who tended to be of the view that the WIA should not recommend band plans in shared allocations, without consulting the Department. The DOC Central Administration is of the opinion that the SYLEDIS frequency allocations have been made known to the Federal Representatives of the WIA.

"(d) The system was switched off on 19th June pending clarification of its status with DOC, but is now restored.

"(e) The options for any improvement appear very limited. A compromise involving effective 'surrender' of the SECONDARY ATV channel 443-450MHz to SYLEDIS was considered as the best solution. However while the beacons can apparently be retuned (synthesiser/filters) the associated receivers come as a high or low band version and it could be that some visiting users may not have the right equipment if the upper band is chosen.

"A second compromise option is to position the SYLEDIS between 420-425MHz. This would require careful control of the lower sideband products of ATV transmissions to avoid interference to SYLEDIS, although the system seems to be fairly immune to outside influences. The problem of high/low band receivers remains.

A third option is considered even more unpalatable than the present situation. SYLEDIS might be moved to a frequency around 434MHz. This would probably see the end of the present weak signal work between 432 and 436MHz, which includes activities associated with beacons, SSB, repeater inputs, and international allocations for EME and the amateur satellite service. Licencees are active in Perth in a pursuits. This course is to be avoided at all costs.

The fourth option is 'to grin and bear it'. This will probably mean that ATV activity will have to transfer to the secondary channel (443-450MHz). The penalties are that the existing prevailing psuedo DSB transmitters will have to be replaced by new VSB IF modulated designs at significant inconvenience and expense. Existing RF amplifiers may have to be redesigned and achieve the same performance as at present. Receivers and antennas will have to be returned or rebuilt. It will present the sort of modest challenge with which the Amateur Service is all too familiar.

'All options are impractical from the DOC viewpoint except the fourth. The Amateur Service has apparently little or no standing as the Secondary Service. Frequency changes in this band must be preapproved by other departments and this involves months of unacceptable delays in commencement of service by the business interests involved, with no guarantee of success. After strenuous efforts, Mr Field has now advised that nothing can be done to change the allocation and that ATV operators in the Perth area should transfer operations to the alternative 443-450MHz channel.

"RECOMMENDATIONS"

"It has been recommended that:

"(i) The WIA take up as a matter of urgency, clarification of the future possibility of extensions of SYLEDIS in Australia.

"(ii) The WIA discuss urgently with DOC, band plans for the shared UHF bands and endeavour to have them recognised as points for consultation when fixed allocations are made to Primary Services. The DOC are currently preparing Policy Guidelines associated with the Australian Frequency Allocation Table and input to these guidelines may be possible. (The formal title is 'Australian Frequency Assignment Policy and Technical Criteria').

'(iii) The WIA attempt to correct by any means the approach taken in the present instance which has treated the Secondary Service as if it did not even exist. At least a warning to avoid interference to the Primary Service in a capital city would have practical value!

"(iiii) Wide publicity be given to the Perth case to reduce the possibility that licencees may be incurring further expenditure on 426.25MHz ATV equipment, which will be rendered useless by SYLEDIS interference.

"QUESTION: Has the SYLEDIS plan, nominating 8 or 9 spot centre frequencies between 426.59 and 427.50MHz been made known formally to the Amateur Service?

"LESSON: This is what being the Secondary Service really means . . . How many of our bands carry this tag?

"Obviously there is a message to be learnt and understood in what has transpired in Perth, and as has already been done similarly overseas with this radio location system. We could well see in the future the existence of such systems around each capital city, so what price for future contacts between Melbourne and Hobart in the 70cm band? Or between Adelaide and Albany?

DXPEDITION?

Roger Harrison VK2ZTB, has responded to a suggestion from Don Richards VK2BXM, that the Dick Smith Explorer may be available late January/early February 1986 for a DXpedition.

Roger suggested one possible trip could be to the Kermadecs of the North Island of New Zealand. It is about 2400km from many points along the eastern seaboard of Australia and the path has possibilities for both Es and tropo propagation modes on the VHF/UHF bands. Sponsorship for food and fuel is the major requirement, of about $3000 per week.

The suggestion has already been put to Don, who is looking at it, but Roger would like some feedback from others who could be interested, as the Kermadecs allows for exploring an interesting propagation path, opens the opportunity to probably the widest range of operators and creates interest because of the call sign (authorities permitting) being a rare one. Propagation to the New Zealand islands could also be explored, further broadening the appeal of the expedition. Weather data could be recorded, perhaps using balloon profile flights and a portable ionospheric sounder.

Roger notes the above are only suggestions and is open to thoughts from others, but fairly soon looms the need for a proposal and willing sponsors. It would certainly provide some healthy VHF/UHF activity as well as giving an adventure to a few lucky people. If you have any thoughts and could help I am sure Roger would be pleased to hear from you at PO Box 289, Wahroonga NSW 2076, phone (02) 487 2700.

By the time you read this I will have returned from a trip to the Pacific on the *Oriana*, so these notes are prepared a fortnight earlier than usual, hence the lack of news. So, closing with the thought for the month: "The only people who brag about having been poor are the rich!" 73, The Voice of the Hills.

AR

AMATEUR HONOURED

A get-together will be held on the 6th October 1985 to commemorate the 50th Anniversary of the first TV transmission in Queensland, which was conducted by the late Tom Elliott VK4CM, one of the Sunshine State's outstanding amateurs.

Those wishing to participate in this official event are requested to assemble at the convict built Observatory Tower on Wickham Terrace, Brisbane at 10.00 am on the above date. This was the site and building from which Tom transmitted his first pictures.

It is not mandatory, but to add atmosphere to the happy gathering, you are invited to appear in period costume — 1930-35 or earlier.

After an official nostalgic speech, those in attendance will then be transported by a colourful fleet of 20 vintage cars, supplied by the Brisbane Vintage Car Club, to the Royal Historical Society in William Street, Brisbane. Here HD Television and other items of the art will be displayed and memories of bygone days joyfully aired.

Come along and pay tribute to a great experimenter and amateur.

For further details contact Tom Ivins VK4ABA, 11 Bunya Park Road, Eatons Hill, Qld 4035. Telephone: 264 1278.

SOUTH POLE HAS SHIFTED

Since measurements began at Mawson Base 30 years ago, the South Magnetic Pole has moved approximately 300km. Latest measurements show the pole has shifted north west of its 1955 position in the eastern sector of the Australian Antarctic Territory.

Its present location is 150km offshore from the French station, Dumont D'Urville. An accurate measurement of the pole's position is important for navigation, particularly in higher latitudes.

The reason for the pole's movement is unknown, but scientists believe that it is caused by changes in the electric current in the earth's outer molten core.

Contributed by Jim Linton VK3PC from LINK, a publication of the Victorian Department of Industry, Technology and Resources.

COMPUTER CARE

A British manufacturer of a wide variety of cleansing and maintenance products is seeking an Australian agent for its range of computer care products.

The range includes a tape and disk drive cleaner, anti-static foam and screen cleaners, pressurised air duster, printer cleaner and much more.

A range of accessories including cleaning brushes and floppy disks are also available.

The company is seeking a national distributor in the first instance, with the possibility of exporting on bulk for re-packaging and perhaps later formulating the fluids in Australia.

Enquiries should be directed to the nearest office of the British Consulate-General and quote AL15/IT/BITN.

CONTESTS

Ian Hunt VK5QX
FEDERAL CONTEST MANAGER

P.O. Box 1234, GPO, Adelaide, SA 5001

CONTEST CALENDAR

OCTOBER

5 — 6 VK/ZL Oceania Phone Contest (Rules September AR)
12 — 13 VK/ZL Oceania CW Contest (Rules September AR)
13 RSGB 21/28MHz SSB Contest (Rules September AR)
20 RSGB 21MHz CW Contest (Rules September AR)
26 — 27 CQ WW DX Phone Contest

NOVEMBER

9 — 10 European DX Contest, RTTY Section (Rules July AR)
23 — 24 CQ WW DX CW Contest

DECEMBER

14 Ross Hull Memorial VHF Contest begins (Rules this issue)

JANUARY

6 Ross Hull Memorial VHF Contest concludes
December should also see the ARRL 160 and 10 metre Contests however, I do not have any dates for these at the time of writing

To a low a calendar to be set up for 1986, I have had to al ocate dates for those contests conducted by me In doing this, I have tried to avoid clashes with major overseas contests, based on dates which have operated over the past three or four years. It may still work out that there will be some clashes, although there is very l ttle else that I can do about the s tuat on

One of the worst months for contests is March, with the ARRL DX Phone, BARTG RTTY and CQ WW WPX SSB contests, all being staged in that month I have, for severa years, campaigned to have our Field Day Contest changed to fall within this month for safety reasons and I feel very strongly that it must receive precedence, as a result Coupled with this, s the current requirement for an additional contest, name y the CW Contest. Follow ng my notes last month, in which I addressed the matter of too many contests, I was asked by the Federal Office for my comments on this contest My reply addressed the matter at length and it has been circulated to all Divisions. I have presented a very strong and reasoned case as to why this contest should be deleted from our calendar and have proposed that a postal motion should be raised. In the meantime, I have no recourse but to schedule the CW and Field Day Contests for consecut ve weekends in March Thus contests under my contro for 1986. will be programmed as follows, with the CW Contest scheduled only on a tentative basis, pend ng a decision yet to be arrived at.

14th December 1985 to 6th January 1986, Ross Hull VHF Contest 8th and 9th March, CW Contest (Tentative) 15th and 16th March, John Moyle Memorial F eld Day Contest, 21st and 22nd June, VK Novice Contest 16th and 17th August Remembrance Day Contest

Harking back to my comments of last month about the rules for the Contest Championship Trophy, I would also toss the follow ng question in for good measure Should championship points be accredit ed to home stat ons when they are operated in the F eld Day Contest? I personally believe that they should not, even when they are operated on emergency power, as I do not believe that they can be classed as being in any direct competition with field stations in this particular contest. Discussing this matter with qu te a number of operators from various states, seems to elicit one main comment to the effect, 'it is a real can of worms' I am still anxiously looking forward to receiving some bright and outstand ng suggest ons to so ve the problems presented Maybe I wi l have to put the matter up to a Federal Convention?? In a l seriousness, if you have an opinion or some interest in this matter, see that it is brought to notice within your Division for proper discussion and debate within the membership. Meanwhile, I will attempt to have discussion raised by working from the other direction, through the Federal Executive and back down to you through the Federal Councillors, who should also bring such matters to the Divisions for discussion amongst the membership.

Remember, this column is being written in August and I feel that our organisation should be capable of making decisions in a rational manner, but without there having to be excessive time delays.

I would also take the opportunity to repeat here what was written by me previously and published in the August 1984 issue of AR. "Please take note that such matters discussed in these notes should be brought to the attention of Divisional Secretaries and Councils" I wonder whether repeating this plea for some interest to be shown, may now fall on other than Deaf Ears

ROSS HULL MEMORIAL VHF CONTEST 1985

Following discussion with quite a number of VHF orientated operators and with particular help from Eric VK5LP, who is well known to you as the correspondent of the VHF column in this magazine, I present, in this issue, the rules of the Ross Hull Memorial VHF Contest for 1985 The rules are being published earlier this year to allow plenty of time for studying them Quite a number of changes have been made, which we feel (or at least hope) might cause a modicum of increased interest in this contest, following the abysmal showing last year, with only seven entrants logs received. I have received various letters dealing with this contest, some of which make certain claims as to just how great the interest really is. Also, at the Federal Convention, statements were made that interest does exist.

Now, please let us just face facts. The only way I, or anyone else for that matter, have of determining how much interest is shown in any particular contest is by the number of entries submitted to the contest manager I queried as to whether it was worthwhile continuing this contest in my annual report and to date, no one has really answered my question in any satisfactory way. I would suggest that if there is a poor response again this time, my next annual report may well contain a very strong recommendation that this contest be disbanded So, come on all you VHFers, if you want a specialist contest for VHF/UHF minded operators, make it known in the obvious manner by supporting it.

One particularly interesting letter I have received, describes a portable operation utilising VHF equipment and a number of operators, who are enthusiasts, obviously trying to do their best to provide an interesting number of contacts during the period of the Ross Hull Contest The letter did however, pose a query as to the nature of the operation, particularly as it involved multiple operators. My view point, is that under the rules, such a station cannot enter the contest on a competitive basis although, it would seem perfectly acceptable that the station could make contacts on VHF and such contacts may be utilised by other stations competing in the contest. If any stations do adopt such forms of operation as proposed in this instance, and give out serial numbers for the contest, I would appreciate receiving a check log, which will help me when checking contacts and results

Another view point proposed was, the contest is a battle between just a few elite members of the VHF fraternity Now, this is certainly one approach which I would like to discourage. I feel, the rules are being framed in such a way to make it possible for many more operators to participate, otherwise why go to so much trouble for just a few? Last year was an attempt to encourage more entrants and this year, whilst there are changes made, with the same idea in mind, none of the changes could be considered radical or outside the general guidelines for this contest. Over the years there have been many experiments made with the rules of this contest and I would like to feel that, if we keep going, we could find a formula which w ll make it much more enjoyable and of interest to a greater number, as wel as provid ng a stable set of rules which can remain unchanged for quite some time

Following the listing of the rules, are quite a number of comments and examples of how things should work and explanation of the philosophy adopted in trying to achieve the desired ends. Again I would like to express my thanks to Eric for his invaluable help in providing these comments

Before closing, I would like to bring one other aspect of the Ross Hu l to your attention — the matter of unethical methods of operating. Various instances of such happenings have been brought to my notice and I have set about investigating such complaints.

Whilst it is not possible for me to monitor all that goes on, it is a fa rly simple matter to obtain information about such practices occurring. I would also like to point out that the practices complained about actually do infringe the regu ations applying to the operation of our stations and as such, they are ikely to be monitored by official Departmental monitors and action taken where necessary

Further, I would suggest to you, we are engaged in a hobby which should bring us much pleasure and surely we would not ga n pleasure and true grat fication by spoiling th ngs for other operators by operating in a selfish manner do realise, at times there are technical difficulties wh ch we encounter, such as crowded bands and cross modulation which present problems but generally there s a way around such difficulties if we apply ourselves.

The previous comments could of course app y to operation in all contests and, to any of our operations at any other time, as we l, I would simply wish that you all find your contesting and whatever other facets of the hobby you deign to pursue of benefit and pleasure, at all times

OBJECTS — Australian amateurs wil endeavour to contact as many other amateurs as possible.

PERIOD — From 0001UTC 14th December 1985 to 2400UTC 6th January 1986.

EXCHANGE — RS(T) plus three figure ser al number starting at 001 and increasing by one for each contact. When 999 is reached, a start s made again from 001

BANDS — All amateur bands above 30MHz Six metre contacts valid on y between 52 and 54MHz Cross band contacts are not permitted Contacts via active repeaters and translators cannot score

OPERATOR — S ngle operator only One transmission only at one time

CONTACTS — One contact per UTC day per band with each stat on

DURATION — a) For the period of the whole contest b) 7 UTC days — not necessarily consecutive c) 2 UTC days — consecutive

SECTIONS — i Phone (AM, SSB, ATV, SSTV) ii CW, RTTY iii 52 and 144MHz only Al modes iv Rece ving, Any mode

LOG SHEETS — t is desirable that logs covering the complete period of the contest be submitted for cross checking purposes. Photocopies are acceptable The following details must be shown Date and Time in UTC, Band, Emission, Station Worked, RST and Number Sent, RST and Number Received, Points, Bonus. Each page must be numbered and totalled at the bottom

FRONT SHEET — A front sheet must be at tached to the log entr es show ng the follow ng information, in this order Section, Ca l Sign Tota of Daily points with Bonus po nts added to provide an overall contest total, List of the best seven UTC days,

with a daily score and bonus points added to provide a seven day total, List of the best two UTC days with daily score, bonus points and two day total. List the bands on which operation has taken place

DECLARATION — I certify that I have operated in accordance with the rules and spirit of the contest Name address, signature and date.

SCORING TABLE FOR AUSTRALIAN STATIONS — 52MHz — 1 point, 144MHz — 1 point, 432MHz — 2 points, 576MHz — 5 points, 1296MHz — 5 points, 2304MHz — 10 points, 3300MHz — 20 points. 5650MHz — 30 points, 10000MHz — 40 points

The above points apply irrespective of distance

BONUS — a) For each new call area in Australia, including own call area, 10 points once only per band per UTC day

b) For each prefix worked outside Australia, 10 points once only per band per UTC day

c) For each band used, 576MHz and higher add 10 points once only per UTC day

SCORING FOR OVERSEAS STATIONS — Stations outside the Australian mainland and Tasmania call areas will endeavour to contact as many Australian stations as possible. Scoring for such contacts will be: 52MHz — 20 points, 144MHz — 50 points, 432MHz — 100 points Should any contact by overseas entrants take place on bands higher than 432MHz, scores will be: 1296MHz — 200 points, 2304MHz — 300 points, etc.

AWARDS — A perpetual trophy is awarded annually for competition between members of the Wireless Institute of Australia The winners name is inscribed on the trophy and he/she also receives a suitable certificate. The entrant with the highest overall score for the contest will be the winner and their Division will hold the trophy for one year

Certificates will be awarded to the highest scorer in each of the seven day and two day divisions. No entrant may receive more than one certificate Overseas entrants will be awarded certificates on the same basis, one for each call area

STATE SCORES — Certificates will be awarded for the highest overall score in each State, and for the highest seven day score in each State

52 and 144MHz — Certificates will be awarded to the entrants with the highest overall score and the runner up for operation on 52 and 144MHz only (combined)

SUBMISSION OF LOGS — Entries are to be forwarded to the Federal Contest Manager, W1A, GPO Box 1234, Adelaide, SA. 5001 Entries must be received no later than Friday, 7th February 1986 Please endorse the outside of the envelope 'Ross Hull Memorial Contest'

RECEIVING SECTION — Logs for the receiving section must show the same information as for a transmitting log, except for the second number exchange. If both stations participating in the contact are heard, both may be claimed but must be listed as separate entries on the log. Scoring will be as for a transmitting log. Any scoring contacts may be logged with no limit to the number of times that one station can be logged

DISQUALIFICATION — The Contest Manager may disqualify logs which are illegible or improperly set out or do not conform to the rules laid down See the General Disqualification Criteria as published in Amateur Radio for August 1984 Any station observed during the contest as constantly departing from the generally accepted codes of operating ethics may also be disqualified

COMMENTS ON A FEW CHANGES TO THE RULES FOR THE ROSS HULL MEMORIAL CONTEST

As a result of submissions from entrants in the 1984 contest, it seemed the ten hour operating rule for another contact with a station was undesirable and this has been removed to a low only one contact per band per UTC day with each station. This should allow some entrants to catch up on wanted sleep

There seemed also to be quite a call for scoring over the whole period of the contest as it was a number of years ago This has been included, but with the seven and two day sections retained. Let us see how it works out before you criticise! The bonus points for VK6 have been withdrawn. It was a very sore point with a lot of people Some doubt still exists in my mind that some form of loading may still be desirable, but at what level is open to comment Let us try this year without. A two day section has been added to the 52 and 144MHz part, it was missed last year.

Now to the scoring table This has always been the greatest source of contention and various combinations of scores and distances have been tried ever since the contest started. None have been really satisfactory and I doubt if there is any one formula which can suit everyone in a VHF/UHF contest spread over a country as big as Australia and with a limited VHF population, when compared with some overseas countries. At best, one can only strive to provide reasonable competition for the majority, there will always be someone disadvantaged in any or all states.

There have been suggestions to have the upper limit over 3000km, instead of last years 2500km, some have doubts about the accuracy of the 400km limit, others would like to see the minimum distance for all bands set at 100km and so it goes on. One of the major continuing problems has been the demand by those operating many bands, that due recognition should be given to the fact, and in general over the years this has been done, either by massive scores per contact, band multipliers and the like. But, what seems to be overlooked, is the question of relativity of scores. Even one point per contact, irrespective of band or distance can be very worthwhile providing, it receives a bonus for the effort involved, which in turn ensures the multiband operator keeps a step ahead of the one or two band operator

However, one must realise that, were it not for the many people who operate on 52 and 144MHz only and make contacts available to all and sundry, the VHF bands would be a rather drab place. Without the push required to match scores being run up by these two bands people, the multiband operators would also find the other bands also becoming drab. It is the mixing of contacts across the spectrum and with all kinds of operators that makes it a contest worth having, and the removal of the second contact after ten hours will make life easier for most

The scoring table this year is the same as the top line of last years table with the addition of points for the next three highest bands after 2300MHz and all distance scales have been removed Some will be shocked at this move, but before getting too worried, study the tables below and see how it really does affect you.

On average there is no way operation only on 52 and 144MHz can take the overall trophy, although these bands could feature in the issue of certificates The present formula for scoring will make log preparation so much easier and more accurate and there will be no distance dispute In one stroke it has removed the disgruntlement that Es on 52MHz is more favourable to some than to others, and will be some consolation to those in Ch 0 and SA areas, to know other areas are not drawing away from them in leaps and bounds with high scoring contacts Examples -

BAND	52	144	432	576	1296	2304	3300	5650	0000
CONTACTS PER BAND-1	1	1	2	5	5	10	20	30	40
CALL AREA BONUS-1 area	10	10	10	10	10	10	10	10	10
576 & ABOVE BONUS	-	-	-	10	10	10	10	10	10
TOTAL FOR 1 CONTRACT	11	11	12	25	25	30	40	50	60

If you operated on 52 and 144MHz, that one contact gave you 22 points, up to 2304 you got 114 points, and to 10GHz 264 points.

If the opposition got into it and worked 50 stations in four call areas on 52MHz, and ten stations on 144 in two call areas, his score would be 120 points. If the multiband operator did the same, he would score 212 up to 2304MHz and 362 up to 10GHz. But, if the multiband station in the same time only worked five stations in two call areas on both 52 and 144MHz, plus one on each of the high bands, then his score would be 142 up to 2304 and 292 to 10GHz

If each contact, irrespective of band, was one point then, 52 and 144MHz only would be 22 points, up to 2304 would be 96 and up to 10GHz 159 points, with the added bonus score, and all this for only one contact on each band!

Surely it cannot be said there is no incentive to operate multibands when, in all reasonable approaches to a daily set of operating contacts, the multiband station wins easily The 6 metre operator would need to make massive daily scores to have any chance of matching the results of a multiband station of six bands, and then his score is negated to some extent because the multiband operator also takes his share of 6 metre contacts! If the multiband operator sees scores of 100 to 200 points per contact as required to warrant his operating on some of the highest bands when he already has many advantages with lesser figures, then his stance is somewhat unrealistic

What price banning 52 and 144MHz contacts under say, 200km, with pro rata, similar distance bands for all other bands?

Incidentally, some operators thought five weeks for the contest was too long. It has been shortened to three weeks and two days covering most of the prime Es periods. The XYL should be more amiable now!!

UBA SWL COMPETITION 1986 — FOURTH EDITION

This SWL competition is open to anyone in the world that are members of an organisation recognised by the IARU

The intention of this contest is to log as many DXCC countries as possible on five bands during a one year period, from 0000UTC 1st January 1986 to 2400UTC 31st December 1986

The countries are according to the ARRL DXCC list and operating bands are 28, 21, 14, 7 and 3.5MHz.

Each country heard counts as one point, and each new country counts as a multiplier

The final score is the total of countries heard on all bands added together and multiplied by the number of different countries heard

There are four categories. It is possible to participate in more than one category at the same time.

The categories are: Phone - single operator, CW - single operator, RTTY - single operator and all mode, club stations or multi-operator.

It is necessary to use special logs, these logs are available from the contest manager for four IRCs.

Stations logged must have made a QSO and the call sign must be shown in full. Dubious calls will be refused

To enter the contest, an interim result, no log, must be sent to the contest manager twice during the year, postmarked no later than 1st April and 1st September. The log must be post marked no later than 20th January 1987

Prizes and certificates will be awarded by the SWL Committee of the UBA and its decision will be final

All participants will receive at least the commemorative QSL via their organisation Participants who wish to receive the interim and final results direct, are asked to enclose one IRC with their interim results or log

Comments are always appreciated

Logs, interim results and all correspondence regarding this competition should be addressed to The UBA SWL Contest Manager Marc Domen ON6945, Gebr Blommestraat 14. B-2200, Antwerpen (Borgerhout), Belgium

PRIZES - The winner in the categories 1, 2 and 3 will receive a trophy The top five in all categories will receive a certificate In all categories, the top scorers from each DXCC country, the first YL and the first /MM stations will receive a certificate if a reasonable score is reached

All other participants will receive a special QSL. All operators in category 4 will receive a QSL if their names are mentioned in the log

AWARDS

Joe Ackerman, VK4AIX
5 Koomooloo Court, Mermaid Waters, Qld 4218

Further to the information relating to the WAC Awards published in the July issue of Amateur Radio, please note the following, which brings the information up-to-date

FAX endorsed certificates are available. Satellite endorsed certificates are available. 50 and 430MHz endorsement stickers are also available

QRP stickers are available, effective 1st January 1985

There are no CW certificates. Basic certificates are issued instead

AM phone certificates are now discontinued

I also asked the question "Who claimed the first WAC issued by the ARRL and also the first award issued by the IARU to VK amateurs

Alfred Short 2SH was the first awardee of the WAC certificate by the ARRL to an Australian amateur. It was in 1926 and he was number 34, worldwide

A S Matber VK2JZ, was the awardee of the first WAC certificate issued by the IARU to an Australian amateur. It was in 1930, and he was number five worldwide

The announcement of the issuance of these certificates was made in the IARU News column of the March 1930 and March 1931 issues of QST magazine

AWARD NET ASSISTANCE

To assist amateurs and SWLs gain Australian awards, the following information relating to nets operated by some clubs is shown

* FISHERS GHOST AWARD. Fishers Ghost ARC, Box 249, Camden, NSW, 2570. Net Fridays 1000UTC on 3.580MHz. Call VK2FFG.
* BLUE MOUNTAINS AWARD, Blue Mountains ARC, Box 54, Springwood, NSW. Net Tuesdays 1030UTC on 3.540MHz. Call VK2AUX.
* LAWRENCE HARGRAVE AWARD. Illawarra ARS, Box 1838, Wollongong, NSW. Net Sundays 1000UTC on 3.562MHz. Call VK2AMW.
* SOUTHERN CROSS AWARD. EMDRC, Box 87, Mitcham, Vic. 3132. Net Thursdays 1000UTC on 3.567MHz. Call VK3ER.
* QUEENSLAND CITIES, TOWNS AND SHIRES AWARD, Box 323, Warwick, Qld. 4370. Net Thursdays 0930UTC on 3.605MHz. Call VK4QA or VK4BMW.
* GOLD COAST AWARD, Gold Coast ARS, Box 588, Southport, Qld. 4215. Net Wednesdays 0930UTC on 3.605MHz. Call VK4WIG or VK4VGC.
* GARDEN CITY AWARD, Darling Downs ARC, 367 Margaret Street, Toowoomba, Qld. 4350. Net Saturdays 0930UTC on 3.587MHz. Call VK4WID.
* PELICAN AWARDS. Sunshine Coast ARC, Box 80, Nambour, Qld. 4560. Net Thursdays 0900UTC on 3.595MHz. Call VK4WIS.
* GOLD AWARD, Gympie ARC, Box 384, Gympie, Qld. 4570. Net Wednesdays 1000UTC on 3.570MHz. Call VK4WIH.
* WHITE BULL AWARD, Roma and Districts ARC, Box 237, Roma, Qld. 4455. Net Fridays 1000UTC on 3.610MHz. Call VK4AEB or VK4NCI.
* MINERAL FIELDS AWARD, Mount Isa and Districts ARC, Box 1715, Mount Isa, Qld. 4825. Net Thursdays 1000UTC on 3.610MHz. Call VK4WII.
* TONY BURGE AWARD, VK4 Disabled Persons RC, Box 3126, Toowoomba, Qld. 4350. Net Fridays 0900UTC on 3.590MHz. Call VK4BTB.

CQ WPX AWARD

The CQ WPX Award recognises the accomplishments of confirmed QSOs with the many prefixes used by amateurs throughout the world. Separate distinctively marked certificates are available for two-way SSB, CW and mixed modes.

APPLICATIONS: All applications and endorsements for WPX certificates must be submitted on the official applications form - CQ 1051A. This form can be obtained by sending a SASE to the WPX Award Manager, Norman Koch K6ZDL, PO Box 1351, Torrance, CA. 90505. It is highly desirable to use a business size envelope for this purpose

All QSOs must be made from the same country

All call letters must be in strict alphabetical order and the entire call sign must be shown

All entries must be clearly legible

Certificates are issued for the following modes and numbers of prefixes. Cross mode QSOs are not valid for the CW or SSB certificates. Mixed (any mode) — 400 prefixes confirmed. CW — 300 prefixes confirmed. SSB — 300 prefixes confirmed. Separate applications are required for each mode

Cards need not be sent, but must be in the possession of the applicant. Any/all cards may be requested by the WPX Award Manager or by the CQ DX Committee

The application fee for each certificate is $4.00 for subscribers and $10.00 for non-subscribers, or the equivalent in IRCs

All applications and endorsements should be sent to the WPX Awards Manager

ENDORSEMENTS. Prefix endorsements are issued for each 50 additional prefixes submitted

Band endorsements are available for working the following number of prefixes on the various bands:- 1.8MHz-50, 3.5MHz-175, 7MHz-250, 14MHz-300, 21MHz-300, 28MHz-300.

Continental endorsements are given for working the following number of prefixes in the respective continents - North America — 160, South America — 95, Europe — 160, Africa — 90, Asia — 75, Oceania — 60

Endorsement applications must be submitted on CQ Form 1051A. Use a separate application form for each mode and be sure to specify the mode of your endorsement application

For prefix endorsements, list only additional call signs confirmed since the last endorsement application

A self addressed envelope and $1.00 or five IRCs is required for endorsement stickers.

PREFIXES - The two or three letter/numeral combinations, which form the first part of any amateur call sign will be considered the prefix

Any difference in the numbering, lettering or order of same shall constitute a separate prefix. The following would be considered different: W2, WB2, WA2, WN2, K2 and KN2

Any prefix will be considered legitimate if its use was licensed or permitted by the governing authority in that country, since 15th November 1945

A suffix would designate portable operation in another country or call area and would count only if it is the normal prefix used in that area. For example, K4IIF/KP4 would count as KP4. However, KP4XX/7 would not count as KP7 since this is not a normal prefix. Suffixes such as /M, /MM, /AM, /A and /P are not counted as prefixes. An exception to this rule is granted for portable operation within the issued call area. Thus contacts with a special prefix, such as WS2IRA/2 counts for WS2; however, WS2,RA/3 would count for W3

All calls without numbers will be assigned an arbitrary 0, plus the first two letters to constitute a prefix. For example RAEM counts as RA0, AIR as AI0, UPOL as UP0. All portable suffixes that contain no numerals will be assigned an arbitrary 0. For example, WA4BPD/LX counts as LX0 and WA6QGW/PX counts as PX0.

VPX AWARD

The VPX or Verified Prefixes Award can be earned by short wave listeners (SWLs), who possess QSL cards confirming reception of at least 300 different amateur prefixes. No mode endorsements are available. Applications are submitted to the WPX Award Manager, in accordance with the WPX rules

For those amateurs and SWLs who do not wish to send their QSL cards to the CQ DX Awards Manager, they may send them to either of the check points in Australia ie VK3NDY and/or VK6,S

PELICAN AWARD

This award is made available by the Sunshine Coast Amateur Radio Club for all licensed amateur radio stations and SWLs

Stations must obtain 10 points by working Sunshine Coast Club members. Overseas stations need only obtain five points for qualification. SWLs must indicate the call signs of both stations heard in a QSO

Stations can be worked on any band using any mode

Photograph - Tony VK7AN

Bob Jackson VK7NBF, Tasmanian Devil Awards Co-ordinator and Net Controller. The Tasmanian Devil Net is on 3.590MHz every Tuesday at 1000UTC

A contact with the club station VK4WIS counts as two points.

QSL cards are not required. Applicants must send a log extract giving details of the contact.

The cost of the award is $2.00 or 10 IRCs.

Address all applications to The Awards Manager, Sunshine Coast Amateur Radio Club, PO Box 80, Nambour, Qld 4560.

The award is printed in two colours on good quality white matt paper. The title is in blue and black, the bird in black with the surround in blue. The award measures 305 x 230 mm.

A club net is held each Thursday night on 3.595MHz at 0900UTC and on 28.400MHz at 0945UTC.

SINGLE MODE — FIVE BAND — ALL CONTINENTS AWARD

This award is sponsored by the Northern Kanagawa DX Association. Rules are as follows.

Applicants must submit proof of QSOs with stations in six continents on a single mode and five bands.

This award is issued to any licenced radio amateur and SWL who submits proof of two-way radio contacts with the above stations.

The mode and amateur bands used and the date of contacts are not limited.

The serial number of the award is separately given to each mode.

This award may be issued for six or more bands with the special endorsement if all supporting information is included in the application.

QSL cards of the same station for different bands and different modes may be used in the one application.

Cross-band and cross-mode QSOs cannot be counted.

This award is given in the form of a trophy with a medal.

Log extracts must be certified by two other licenced amateurs.

Applications to be forwarded to The Awards Chairman, Northern Kanagawa DX Association, JE1TTI, Michinor Jimbo 2653 Suarashi, Sagamiko-Machi Tsukui-Gun, Kanagawa-Ken, 199-01, Japan.

Cost of the award is 35 IRCs and the award is returned by air mail.

A FAR NET AWARD CERTIFICATE

The Armoured Force Amateur Radio Net offers this A Far Net Award certificate to amateur radio operators of any nation. The 216 by 279mm certificate is printed on white heavy stock, in four colours and is intended for framing.

Endorsements are available for making additional contacts also for contacts in one mode or on one band. Applications may be made for any award, level, mode or band operation, at any time.

To qualify for the basic award, non-member stations must establish two-way contact with a minimum of 15 different Net members.

To qualify for endorsements, non-member stations must make contact with 10 or 35 member stations on any band, in any mode.

Confirmation of the required contacts must be through a copy of the non-members log which has been certified by two other amateur radio operators.

Applicants for the basic award certificate must submit a minimum of 50 cents, along with their application to cover postage, envelopes, etc.

All applications should be sent to The A Far Net Certificate Manager, Alfred G Beutler K2DWI, 36 Manchester Road East Aurora, New York, 14052.

A Far Net members have a very distinctive QSL card which shows the badge and the members number.

NEW ZEALAND LIGHTHOUSE AWARD

This award is sponsored by the Certificate Hunters' Club, NZ Chapter #3 and commenced on the 1st February 1985.

The main purpose of the award is to make two-way contact with, and collect points from amateur radio stations within a radius of 30km of the 26 recognised Marine Department lighthouses around the New Zealand coastline.

Only those lighthouses on the check list are acceptable. Lights under the control of the Harbour Boards are not acceptable.

Points are allocated according to the degree of difficulty in road access to within the 30km radius. This distance has been selected as it represents the average distance that these lights can be seen, even though they may not be visible on land.

A total of 10 points are required for ZLs, all others require five points. An extra point is given if the station worked is within one km of actual light.

Two extra points are given if the station worked is aviation mobile or marine mobile within the 30km radius.

Triple points are given if the station worked is a paid member of the lighthouse service of the Marine Division, Ministry of Transport and is operating within one km of a recognised light.

Applicants to also work any five members of CHC nominating this award for the contact. The members CHC number to be recorded.

All applications to be on the official check sheet, which also has a list of the lighthouses which are acceptable. They are available from the Awards Custodian.

Cost is $1.00 and applications should be sent to The CHC Awards Custodian, Evan P Tombs ZL2IC Ihakara, RD 1, Levin.

JUBILEE 150 AWARD

The Colony of South Australia was founded on the 28th December 1836, and to celebrate the 150th Anniversary of this event, the Wireless Institute of Australia, South Australian Division Inc has pleasure in announcing the Jubilee 150 Award.

Through the generous support of the South Australian Tourist Bureau (major sponsor) ESTROW and Qantas, the award is issued free of charge to radio amateurs and short wave listeners who satisfy the conditions set out below. There is a $2 handling fee, one pound sterling or 4 IRCs.

1 a. Amateur operators must work stations in the Australian fifth call area, ie AX5, VI5 and VK5, to accumulate 150 points, all contacts to be made within the conditions of the operator's licence. Contacts to fall within the UTC year 1st January to 31st December 1986.

2 b. SWLs must log stations in the Australian fifth call area, as above, to accumulate 150 points. Each log entry must show not only the Australian call sign, but also that of the station being worked. No CQ calls to be included. Logged stations to fall in the UTC year 1st January to 31st December 1986.

2 The points per contact are calculated from the location of the station claiming the award as below:

QTH/BAND	1.8	3.5	7	14	21	28	50/ABOVE
VK5	1	1	1	1	1	11	
VK1-4 & VK6-8	3	1	1	1	1	2	5
OTHER OCEANIA	5	3	2	1	2	3	10
REST OF WORLD	6	5	3	2	3	4	10

Exceptions are satellite and EME contacts, 5 points. WARC Bands, 5 points regardless of location. WIA affiliated club stations count double (VK5s — WI, WIA, ALE, ALM, ARN, APC, ARC, BAR, BPA, BWR, LZ, RCN, SR). Jubilee station VK5JSA counts 15 points (alternative prefixes allowed). Stations other than VK5 are allowed repeater contacts on VHF/UHF. Each station may be worked once only on each band.

3 Contacts may be made by any mode, on any authorised band, and awards will be endorsed appropriately if requested. Contest contacts are acceptable, and DX stations should note that the primary DX contest is the VK/ZL/Oceania Contest held on 3/4 October (phone) and 18/19 October (CW).

It is not necessary to submit QSL cards. Log extracts submitted may be checked for authenticity.

4 The log should show the call sign/s, name and QTH of the applicant as well as the following information, set out in chronological order:

*Date, UTC, Station Worked/Heard, *RS(T) Received, RS(T) Sent, Band, Mode, Points Claimed.*

** SWLs should indicate here the station being worked by the South Australian stations.*

5 Further information and application for the award should be made to Row and Bruce VK5OU GPO, Box 1234, Adelaide, SA, 5001.

MALTESE AMATEUR RADIO INTERNATIONAL SOCIETY OF AUSTRALIA

The MARIS was formed in January 1981, and has experienced a healthy growth, with the object of promoting amateur radio to the Maltese community Australia wide.

The society's activities include field outings, two regular nets on the air and conducts regular lectures in electronics for those interested in achieving an amateur radio licence. One net is held every Wednesday at 1000 UTC on 3.585MHz +/- QRM, the other being each Sunday at 2300UTC on 28.585MHz +/-.

An award is available for amateurs and SWLs who can fulfil the following conditions.

Only contacts with members of MARIS of Australian are valid for this award.

DX stations require three points

Stations within Australia require five points.

Claims submitted for the award should show an extract of the log, including the MARIS members number per station worked.

MARIS members count as one point. MARIS club station counts as two points.

Applications together with A$3.00 or equivalent should be sent to. The Award Manager, 842 Old Northern Road, Glenorie, NSW 2157 or PO Box 690, Parramatta NSW 2150.

Submitted by Ali Portelli VK2PPA, PR Officer MARIS of Au

WIA AWARDS

The Federal Awards Manager is on leave for three months. During this time, all awards material will be handled by Joe VK4AIX, QTHR.

SPOTLIGHT ON SWLing

Robin Harwood, VK7RH
5 Helen Street, Launceston, Tas 7250

October has arrived which means that it is time, once again, for the annual VK/ZL Contest, Jamboree on the Air as well as the CQ Worldwide DX Contest. It can be quite a hectic month, if one were to engage themselves in all of these activities.

I will mainly be concentrating on JOTA '85 and will be operational again with the 18th Launceston Scout Troop. I am sure there will be many other amateurs operating portable with the scouts, or having scouts in their shack over the weekend of the 19th and 20th October.

HIGH SECURITY PROFILE

This month I will be involved in monitoring various services, with regard to the amount of deliberate interference they suffer from OTHR systems or from jammers. Sadly, the amount of interference is increasing, which does restrict available band space for HF communications. There have been developments with specialised communication systems, such as some with time division and frequency division multiplex modes, to get around jamming. But these modes are designed, primarily for data applications, where there is a need for security and speed and not by amateurs or broadcasting services. Both TDM/FDM modes are utilised by the military services or by other users with a high volume of traffic requiring a high security profile.

UNMISTAKABLE WHITE NOISE

While I am talking of jamming, I did notice that the BBC Russian Service continued to be suffering interference, during the recent strike by BBC External staff, even though there were no programmes, only announcements stating that normal programming would be resumed the next day. One source claims that the jammers were removed from the BBC's Russian and other language groups of the USSR, but this may have been on later time slots. Yet the unmistakable white noise was clearly audible at 0345 UTC, during the first release of Russian.

This white noise is a real nuisance, for it spills over on adjacent channels, causing real difficulties to listeners. It would be ideal if there were no jammers to clutter the air waves. Yet, we have to be realistic and face the fact that jamming will continue. Protests have some effect, but the results seem to be temporary. With propagation being markedly poor because of the low sunspot count, it is quite annoying to have jammers splatter over the allocations, when one is trying to listen to signals.

NEW RECEIVER

Recently I acquired a Sony ICF 7600D portable communications receiver. I must say that I am pleasantly surprised by its performance although, admittedly it is not in the same league as my R-70. The sensitivity is quite good but its selectivity is wide, which is to be expected. The size is a lot smaller than the original ICF-2001 and is only 640 grams. Its dimensions are 184.5mm wide by 118.5mm high and only 32mm deep. This means that it slips very easily into a carry bag. It runs on 6 volts DC from four 'AA' cells and has an AC adaptor, which weighs as much as the set itself.

The set tunes from 153kHz to 29.995MHz, continuously. It also has a BFO for SSB or CW. It also covers the FM broadcasting band from 76.000MHz to 108.000MHz. There are ten pre-set memories for you to enter your favourite channels. There are four ways of tuning the set by manual or automatic tuning. However, you do go to the nearest five kilohertz above 160kHz, eg: Radio Pyongyang on 9.997kHz will appear as 9975 on the display, but one can net exactly with the fine tuning control.

NOT PREVIOUSLY HEARD

On medium wave, the set scans in 9kHz steps, yet inside there is a switch to scan in 10kHz steps within North America. Unfortunately, my location is pretty close to a 5kW sender on 1.008MHz, which blocks all MW signals. This is overcome by using an ATU or wavetrap.

Away from the city, I have no overload problems. Yet here in Launceston I have heard Radio Beijing on 1.296MHz broadcasting in Vietnamese quite well from 1130UTC, when both 4BK in Brisbane and 1ZH in Hamilton, New Zealand, fade out. The transmitter is believed to be located at Kunming and is rated at over 500kW. I must confess that I haven't previously heard this signal on my R-70.

The set performs reasonably well on the tropical bands, although its wide selectivity causes problems. I have heard Radio Reloj, in Costa Rica, on both 4.832 and 6.006MHz, although there was plenty of noise and whistles from adjacent stations. That is why I prefer the R-70 on tropical bands, as I can notch out adjacent channels and use the noise limiter.

MAJOR PLUS IS PORTABILITY

I would say that the set's major plus is its portability, as it fits quite readily into my lap or travel bag, only taking 90 seconds to pack whilst the R-70 takes at least 20 minutes. I can carry the ICF-7600D anywhere.

BROADCASTING IN TURKISH

Interestingly enough, I recently came across Riyadh, in Saudi Arabia, broadcasting within our 20 metre amateur band. The station was broadcasting in Turkish on 14.060MHz and was operating on 11.685MHz in parallel. Now, as you are aware, that frequency is allocated exclusively to amateurs and not broadcasters, so you may wonder why it was on that channel with 350kW of RF. Well, it appears as if human error is the simple explanation, for the sender normally is scheduled to operate on 15.060MHz, at that time. The station has returned to normal operations on 15.060MHz now, after causing havoc on the CW section for a few days before they realised their error.

Well, that is all for this month. Until next time, the very best of DX and 73 — Robin VK7RH.

AR

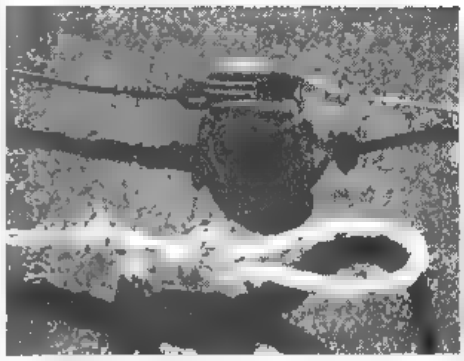
RADIO LICENCES INCREASE

The Wireless Department of the Commonwealth Government was working long hours in 1925, after a revision to licencing regulations. A total of 58,876 broadcast listener's licences were granted in Australia: 32,889 in NSW, 18,517 in Vic, 3290 — WA, 2702 – SA, 1004 Qld and 474 in Tasmania.

To supply this large radio public with programmes there were six 'A' class stations and 13 'B' class stations. In addition there were 1118 experimental receiving licences and 276 transmitting/receiving licences.

Adapted from The Listener In, 4th July 1925.

TRY THIS



THE 'GEE' KNOT

Errol Chick VK3GG
15 Vida Street, Essendon Vic 3040

This simple loop knot has been used over the ages by the Eskimos but, for some unaccountable reason, its existence and virtues have been ignored.

Compared to the usually recommended bowline, the Gee knot is easier to tie, main line tension is easily maximised, adjusted and maintained and the end is clear of the loop.

It is simply formed by feeding the end of an overhand knot back through that knot, repeating the overhand twist the same way around the main line, then locking the end against the knot — see photograph.

It all started when my wife wanted a tight nylon line in the laundry to air clothes. The problem was to maintain tension when tightening the knot — coming back through the overhand knot was ideal: push against the knot and pull the end tight, hold, lock and finally tighten.

My first reaction was 'Gee - What an ideal knot!' Hence the name and surely someone had thought of it before. As expected, knots research revealed the Eskimos as the origin.

This knot can also be safely used on fishing line, thin enough to apply good tension but, for Halyards, I prefer to use 2.5mm monofilament nylon shark line as the most durable and weatherproof, with minimum wind resistance and maximum strength. It is then desirable to use extra locking by a second overhand knot, instead of the self-locking twist.

Neither the bowline nor the Gee knot give maximum line strength, so the Blood Bight Loop knot should be used for fishing.

AR

GALLIUM ARSENIDE

Gallium Arsenide has arrived! This year it will begin to replace silicon as THE material for semiconductors. Not a few UHF GaAsFETs but for up to five times faster computer chips. A simple device has been developed with a few transistors in which electrons travelled from input to output in 11 trillionths of a second. The other big advantage is temperature. Silicon deteriorates with heat. Gallium Arsenide works happily at 200 degrees Centigrade.

From Bear Facts, courtesy of Paparkura Amateur Radio Club.

AR

AMSAT AUSTRALIA

Colin Hurst VK5HI
8 Arndell Road Salisbury Park, SA 5109

NATIONAL CO-ORDINATOR
Graham Ratcliff VK5AGR

INFORMATION NETS

AMSAT AUSTRALIA
Control: VK5AGR
Amateur Checkin 0945 UTC Sunday
Bulletin Commences 1000 UTC
Winter 3.685 MHz Summer 7.064 MHz

AMSAT PACIFIC
Control: JA1ANG
1100 UTC Sunday
14.305 MHz

AMSAT SW PACIFIC
2200 uTC Saturday
21.280/28.878 MHz

Participating stations and listeners are able to obtain basic orbita data including Keplerian elements from the AMSAT Australia net. This information is also included in some WIA Divisional Broadcasts

ACKNOWLEDGEMENTS

Contributions this month are from Bob VK3ZBB, Graham VK5AGR and various UOSAT Bulletins

AMSAT AUSTRALIA NEWSLETTER

Graham VK5AGR, the National Co-ordinator of AMSAT Australia, is now producing a monthly newsletter containing updated satellite news, orbital predictions, keplerian data and operating hints and techniques. The objective of the newsletter is to keep the amateur populous informed on the latest information available and to realise funds for the funding of projects or the purchase of an item/s of hardware for a future amateur satellite project, eg. Phase 3C, Phase 4 or whatever. The cost of the newsletter is $15 and cheques made payable to the WIA (SA Division) should be forwarded to Graham VK5AGR, QTHR.

At the time of writing these notes, there were 111 paid subscribers to the newsletter

PLAN 10 COMPUTER SOFTWARE

An excellent OSCAR 10 software package, called PLAN 10, has been written by Jim Miller G3RUH. This package takes into account the actual attitude of the spacecraft (lat and long in BAHN co-ordinates), and outputs a term titled SQUINT angle, in addition to the standard Az and El data. The SQUINT angle is the angle subtended by the spacecrafts antennae and the groundstation, a direct reading of the off-pointing magnitude. Due to the massive eclipse season that OSCAR 10 is currently experiencing, thus the resultant re-orientations that are taking place, makes the use of PLAN 10 a must for the most ardent of communicators.

At this stage, the programme is available from AMSAT Australia (VK5AGR QTHR) for the Tandy Model 1 and 3, and the Commodore 64 computers. Jim G3RUH requests that a donation be made to the satellite programme for each copy made, and in Australia, cheques made payable to the SA Division, WIA, will assist the smooth transfer of funds to the satellite programme

MANNED MISSIONS

The latest shuttle liftoff was from Cape Canaveral, at 2100UTC on 29th July. The launch had to be postponed from 12th July because of a faulty computer. It was due to launch at 1923 on 29th July but further minor problems forced the delay until 2100. When the first 2 metre SSTV signals were heard on orbit 47, the word was spread quickly, that the operation was under way. W0ORE began keeping QSO scheds with club stations and youth groups. Video was exchanged with the JPL Club in Pasadena WA6VIA, the Johnson Space Centre Club in Houston, and the Goddard Space Flight Centre in Greenbelt WA3NAN. Later open field QSOs were sought by the astronaut and thousands responded with a deluge of RF

AUSTRALIAN OPERATIONS

At the time of preparation of these notes, VK par-

SATELLITE ACTIVITY FOR PERIOD 30 MAY TO 30 JUNE 1985.

1. LAUNCHES

The following Launching Announcements have been received -

1985 042A	Cosmos 1656	May 30	USSR
1985 043A	Soyuz T 13	Jun 6	USSR
1985 044A	Cosmos 1657	Jun 7	USSR
1985 045A	Cosmos 1658	Jun 11	USSR
1985 046A	Cosmos 1659	Jun 13	USSR
1985 047A	Cosmos 1660	Jun 14	USSR
1985 048A	STS 51G	Jun 17	USA
1985 048B	Morelos A	Jun 17*	Mexico
1985 048C	Arabsat 1B	Jun 18*	ARCO
1985 048D	Telstar 3D	Jun 19*	AT&T
1985 048E	Spartan 1	Jun 20*	See below
1985 049A	Cosmos 1661	Jun 18	USSR
1985 050A	Cosmos 1662	Jun 19	USSR
1985 051A	Progress 24	Jun 21	USSR
1985 052A	Cosmos 1663	Jun 21	USSR
1985 053A	Three Objects	Jun 21	USSR
1985 054A	Cosmos 1664	Jun 25	USSR

also

1984 125E	VEGA 1 Lander	Jun 10*	USSR
1984 125F	VEGA 1 Balloon	Jun 10*	USSR
1984 128E	VEGA 2 Lander	Jun 14*	USSR
1984 128F	VEGA 2 Balloon	Jun 14*	USSR

NOTES.

* denotes the date that the satellite was separated from the main platform

1985 048E Spartan 1 was launched from the STS Shuttle Discovery on June 20, 1985. Spartan 1 is the first of a series of low-cost free flyers designed to extend the capabilities of sounding rocket class experiments.

These satellites are designed by NASA to be deployed and retrieved by the orbiting STS Shuttle, using the Canadian-built Remote Manipulator System (RMS). Once deployed, the Spartan satellite will perform scientific observations for up to 40 hours. All control commands are stored onboard in a microcomputer, and all data is recorded on a 10Bit bit tape recorder. When the Spartan has completed its observing sequence, it secures all systems and places itself in a stable attitude to permit retrieval by the shuttle and return to Earth for data analysis and preparation for a new mission. The Spartan 1 experiment, which is a medium resolution X ray scanner over the energy range 0.5 to 15 keV, will make observations of the Perseus Cluster, Galactic Center, and Scorpeus X-2. The instrument was provided by the U.S. Naval Research Laboratory.

2. RETURNS.

During the period forty five objects decayed or returned including the following satellites

1979-097A	Molniya 1-35	Jun 9
1984 125E	VEGA 1 Lander	Jun 10
1984-125F	VEGA 1 Balloon	Jun 10
1984 128E	VEGA 2 Lander	Jun 14
1984-128F	VEGA 2 Balloon	Jun 14
1985 031A	Cosmos 1647	Jun 11
1985-044A	Cosmos 1657	Jun 21
1985 048A	STS 51G	Jun 24
1985-048E	Spartan 1	Jun 24

OSCAR-10 APOGEES
OCTOBER 1985

DAY #	ORBIT #	U.T.C HHMM:SS	SATELLITE CO-ORDINATES LAT DEG	LON DEG	SYDNEY AZ DEG	SYDNEY EL DEG	[illegible] AZ DEG	[illegible] EL DEG	PERTH AZ DEG	PERTH EL DEG
1st October										
274	1733	1543:17	-28	263	272	38	282	44	302	66
2nd October										
275	1735	1502:28	-28	253	278	41	298	53	324	72
3rd October										
276	1737	1421:28	-28	244	285	50	301	61	8	76
4th October										
277	1739	1340:22	-28	235	295	59	318	68	37	73
5th October										
278	1741	1259:22	-28	225	315	66	346	72	59	66
6th October										
279	1743	1218:25	-28	216	334	72	28	72	72	57
7th October										
280	1745	1137:27	-28	207	9	74	46	67	80	49
8th October										
281	1747	1056:27	-29	197	40	70	62	60	86	40
9th October										
282	1749	1015:30	-29	188	59	60	73	52	91	31
10th October										
[illegible]	1751	0934:30	-29	178	71	55	81	43	96	23
11th October										
[illegible]	1753	0853:32	-29	169	79	46	87	35	100	14
12th October										
285	1755	0812:32	-29	160	86	30	92	26	105	6
285	1756	1952:04	-28	335					252	1
13th October										
286	1757	0731:35	-28	150	91	29	97	18	110	-1
[illegible]	1758	1911:06	-28	[illegible]					256	9
14th October										
287	1759	0650:38	-21	141	96	21	102	10		
287	[illegible]	1830:06	-21	316			250	-1	261	17
15th October										
288	1761	0609:37	-21	131	101	13	107	3		
288	1762	1749:09	-21	307			205	7	245	26
16th October										
[illegible]	1763	0528:40	-21	122	106	5				
289	1764	1709:11	-21	297	253	4	268	14	278	34
17th October										
290	1765	0447:40	-21	113	111	-2				
290	1766	1627:11	-21	288	250	12	265	22	275	43
18th October										
291	1768	1546:14	-21	279	262	28	278	31	291	52
19th October										
292	1770	1505:14	-21	269	267	28	275	39	298	61
20th October										
293	1772	1424:16	-21	260	272	36	282	48	304	69
21st October										
294	1774	1343:16	-21	250	278	45	291	56	332	76
22nd October										
295	1776	1302:19	-21	241	286	54	303	64	15	77
23rd October										
[illegible]	1778	1221:21	-21	232	296	62	324	71	49	72
24th October										
297	1780	1140:21	-21	222	313	70	357	74	67	64
25th October										
[illegible]	1782	1059:24	-21	213	343	75	32	72	77	55
26th October										
299	1784	1018:28	-21	203	22	74	54	66	84	46
27th October										
[illegible]	1786	0937:26	-21	194	50	69	68	56	90	37
28th October										
301	1788	0857:56	-22	185	66	61	78	50	94	29
29th October										
[illegible]	1790	0816:56	-22	175	76	53	84	41	99	21
30th October										
[illegible]	1792	0735:59	-22	166	83	44	90	33	103	12
31st October										
304	1794	0654:59	-22	157	89	36	95	24	108	5
304	1795	1834:30	-22	332					[illegible]	4

Continued over page . . .

ticipation in the ST541-F Shuttle Mission was rather sketchy. However, it has been reported that Peter VK2BXQ did manage a voice contact with Tony England W0ORE on 5th August at around 1130UTC. On the subject of the SSTV transmissions, I understand that many fine pictures were received by many amateurs in VK2 and VK3. To this end Barry VK2AHE, in Newcastle, is undertaking the task of co-ordinating all the SSTV receptions and plans to make a video tape of all the Shuttle pictures, for the benefit of those unable to view SSTV transmissions. It is hoped that Barry's efforts will find their way into the Federal Video Tape Library.

UP-COMING FLIGHTS

Two German radio amateurs may be carrying an amateur radio station aboard Shuttle Flight 61A, this October. It is reported that Dr Ernst Messerschmid DG2KM and Dr Reinhard Furrer DD6CF, will be on board Shuttle Columbia, for the Spacelab D1 operation and hope to engage in cross band, OSCAR transponder type operation. The equipment was reportedly built by the European electronics concern, Robert Bosch Company, and is said to be capable of four, 2 metre and eight 70cm channels. In addition to two-way FM QSOs whenever the astronauts are available, automatic logging equipment is planned for recording all received calls when they are busy with other Spacelab duties. The package will also have a 1 watt, 70cm beacon for determining when the shuttle is within your communications range. The equipment appears to be designed for cross band, rather than in band operation. A typical Mode B or Mode J station would appear required to permit QSOs (Mode B is 70cm up, 2m down; Mode J is 2m up and 70cm down).

AMSAT OSCAR 10 OPERATIONS

As anticipated, the new restricted use operating schedule was put into effect by command station ZL1AOX, earlier this month. The exact cutover date was slipped from 1st August to 5th August, to allow a few extra days for repositioning the satellite. The new schedule is:

OFF	040-189
MODE L	190-206
MODE B	207-039

The ten extra counts of Mode B time (as compared to the previously announced cutoff of 29), is an experiment according to ZL1AOX. It will be carried at this extended level for as long as battery condition allows.

Also changing with the new schedule, is the use of the 2 metre omni-antenna — its use now extends from MA45 to 184. This increase reflects the results of experiments last month to evaluate the effectiveness of the omni, compared to the high gain array, during portions of the orbit when the latter is severely off-pointed.

This schedule and antenna protocol is likely to remain in effect until early September.

SOVIET SPACECRAFT

The RS satellites have been off because of eclipses, according to G3IOR, who also stated that ISKRA 4 will not be launched this year, but rather January 1986. There will be no transponder aboard according to this report, but a beacon is possible, however no frequency has yet been specified. The SKRA satellites are constructed by a group of international students studying at the Moscow Aviation Institute and are intended more as educational exercises in practical engineering, rather than communications experiments, but they have none-the-less provided considerable propagation information.

de Colin VK5HI

AWARDS

Bill Hempel VK4LC is on holidays. Please direct all award claims etc, to Joe Ackerman VK4AIX, at 5 Koomooloo Court, Mermaid Waters, Qld 4218.

OSCAR 10 APOGEES
NOVEMBER 1985

DAY #	ORBIT #	APOGEE U.T.C HHMM:SS	SATELLITE CO-ORDINATES LAT DEG	LON DEG	BEAM HEADINGS SYDNEY AZ DEG	SYDNEY EL DEG	ADELAIDE AZ DEG	ADELAIDE EL DEG	PERTH AZ DEG	PERTH EL DEG
0th November										
304	1795	1834:30	-22	332					252	4
1st November										
305	1796	0614:01	-22	147	94	27	108	16	112	-3
305	1797	1753:32	-22	323					257	12
2nd November										
306	1798	0533:01	-22	138	99	19	105	9		
306	1799	1712:32	-22	313			251	2	261	20
3rd November										
307	1800	0452:04	-22	128	104	11	110	1		
307	1801	1631:35	-22	304	249	-1	255	10	265	29
4th November										
308	1802	0411:06	-22	119	108	4				
308	1803	1550:35	-22	294	254	7	260	10	270	38
5th November										
309	1805	1509:37	-22	285	258	15	265	26	275	47
6th November										
310	1807	1428:40	-22	276	263	23	270	34	281	55
7th November										
311	1809	1347:40	-22	266	267	31	276	43	291	64
8th November										
312	1811	1306:43	-22	257	272	40	282	51	300	73
9th November										
313	1813	1225:42	-22	247	279	48	292	60	342	78
10th November										
314	1815	1144:45	-22	238	286	57	304	60	31	77
11th November										
315	1817	1103:45	-22	229	298	66	331	74	59	70
12th November										
316	1819	1022:48	-23	219	318	73	9	75	73	62
13th November										
317	1821	0941:50	-23	210	355	77	43	71	81	53
14th November										
318	1823	0900:50	-23	200	35	74	62	64	88	44

Bill Martin, VK2COP
FEDERAL INTRUDER WATCH CO-ORDINATOR
33 Somerville Road, Hornsby Heights NSW 2077

Intruders reported for the month of June 1985 are a little up on the figures for the same month last year. Let us hope the rest of the current year shows a downward trend.

BEING HEARD

The nuisance beacon-like signal sending 'V' in CW on or about 7.003MHz is still in evidence and is being heard by many observers.

INTRUDERS ON LATE

The usual 40 metre broadcasts continue to plague us, and late at night the intrusions into the 40 metre band have to be heard to be believed.

BROADCASTING!

For those who are hearing and/or reporting the broadcast station 14 060MHz, the information is that this is BSKSA, in Riyadh Saudi Arabia. Its usual frequency is 15.060MHz, and it broadcasts in Turkish between 0400 and 0600 UTC. It is also heard on 11.685MHz. Radiated power is 350kW — try competing with that!!

Thanks to Robin VK7RH for that piece of investigative work.

IS YOUR CALL HERE?

Other interested amateurs and SWLs who have helped out with reports for the month comprise VKs 2BQS, 2DEJ, 2DUO, 2QL, 4ADB, 4AKX, 4BG, 4BHJ, 5GZ, 5TL, 7RH and Mr G H A Bradford. I do not know what we would do without these stalwarts of the Intruder Watch. What about giving them a hand?

Perhaps a look at the number of intrusions reported for June may motivate someone to send in a report. 311 intruders were logged using the broadcast mode; 74 using CW, 89 using RTTY and 48 were using other modes of emission. 48 intruders gave identifying call signs — very civil of them — pity they didn't have such high standards in other spheres.

NEW SHACK

As I write the column this month I am about two hours away from the RD Contest, and am even now mentally preparing myself. Should do well this year, as I have just built and only a few days ago moved into a new shack. There is nothing like a new shack — the signal reports are improving already.

While I am talking personally, I would like to report that I have just qualified for and have received, the WIA DXCC Certificate. A lot of work went into the obtaining of this desirable award, and I am very proud to be a recipient.

I would like to take the opportunity to say what a fine job Bill VK4LC is doing as Federal Awards Manager. He processed my application in quick time, and deserves many thanks for doing a fine job. (One which I wouldn't like to have, incidentally). Better finish up now, as the RD Contest will be starting soon, and I want to get in early, although if conditions are no better this year than they were last year, it will be tough going.

See you all later, and think of the Intruder Watch next time you hear a station that should not be there. 73 and good DX.

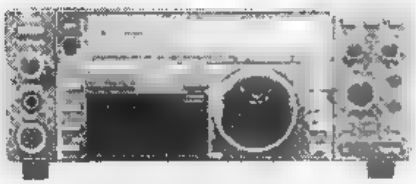
MAGPUBS

Please note that the UHF Communications magazine (English version) is being produced for 1985, and the first issues were sent at the end of July 1985.

ICOM

MOST COMPACT HF TRANSCEIVER

IC-735



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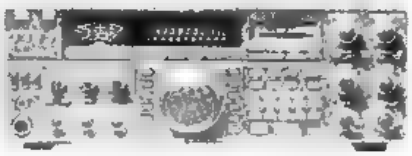

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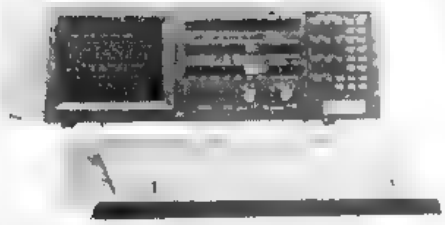

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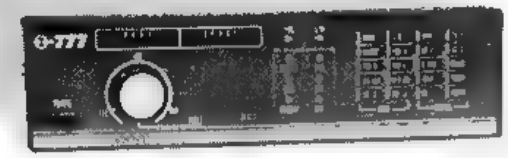

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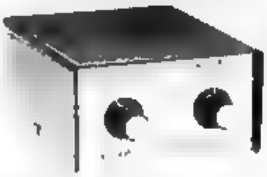

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EDUCATION NOTES

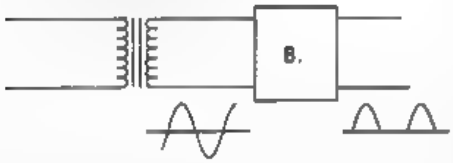
Brenda Edmonds, VK3KT
FEDERAL EDUCATION OFFICER
56 Baden Powell Drive, Frankston, Vic 3199

NAOCP TRIAL EXAMINATION PAPER

This time we again test members with a Novice Trial Exam. This is a chance for listeners to check to see if they are ready to sit for an operating licence and for licence holders, who sat for their licence a few years ago, to see if they would still get their ticket today! Select the correct or most appropriate alternative and indicate that alternative.

1 An EMF is induced in a conductor when
a it is in a strong magnetic field
b the magnetic field around it changes.
c a current flows through it
d it is wound into a coil

2 The device in B could be a



a bridge rectifier
b low pass filter
c diode
d Class B amplifier

3 The characteristic impedance of open wire twin feed transmission line is usually:
a 50 ohms or 72 ohms
b 150 ohms.
c 300 ohms or 600 ohms.
d 1000 ohms.

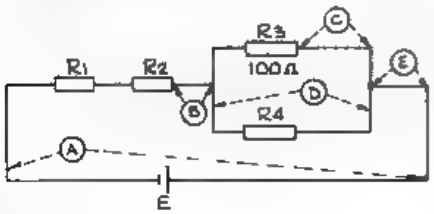
4 A resistor is colour coded red, violet, yellow, gold. Its measured resistance should be between:
a 283 kohms and 256 kohms.
b 342 kohms and 418 ohms
c 28350 ohms and 25650 ohms.
d 297 kohms and 243 kohms.

5 A novice transmitter has a DC input to the final stage of 30 watts. The power supply transformer should be capable of supplying:
a 30 amps
b 30 watts.
c 35 watts.
d 75 watts.

6 When low level modulation is used in an AM transmitter:
a the received signal will appear undermodulated.
b no audio amplifier stage can be used.
c the modulation must be applied at the final power amplifier stage
d all subsequent RF amplifier stages must be linear

7 The point of peak voltage in a quarter wave length vertical antenna is:
a at the tip.
b at the feed point.
c one quarter wavelength below the tip.
d alternately at the tip and the feedpoint

8 The current through R3 could be calculated from the voltage measured at:



a A
b B and E
c C
d D

9 A germanium diode will conduct when:
a the junction voltage exceeds 0.3 volts
b a positive voltage is applied to the N type material.
c there is an excess of electrons in the P type material.
d the depletion layer is saturated with current carriers.

10 The screen grid in a pentode electron tube is usually:
a at higher potential than the anode
b at cathode potential.
c at potential between that of the cathode and the anode
d internally connected to the anode

11 The third harmonic of a 7MHz signal would appear at:
a 2.33MHz.
b 21MHz
c 28MHz.
d 56MHz

12 In a bridge rectifier circuit, the PIV ratings of the diodes should be at least:
a twice the peak AC output of the secondary.
b the peak AC output of the secondary.
c twice the AC RMS voltage.
d equal to the AC RMS voltage.

13 An RF power amplifier stage may be neutralised:
a to prevent the radiation of harmonic oscillations.
b by providing positive feedback to the input.
c when the output frequency is exactly twice the input frequency.
d by providing negative feedback.

14 In this SSB transmitter the function of block 4 is to:

a suppress the carrier
b filter out one sideband.
c multiply the frequency.
d filter out the modulation.

15 A keyed CW signal when transmitted comprises:
a a continuous single frequency intermittently modulated by a 1kHz tone
b short and long segments of a single frequency modulated by a 1kHz tone.
c a single unmodulated frequency switched on and off.
d a 3kHz band of frequencies broken up by keying.

16 The wave propagated from a horizontal dipole antenna will be:
a vertically polarised.
b horizontally polarised.
c omnidirectionally polarised.
d unpolarised

17 To receive CW on a receiver designed for AM only, it is necessary to add:
a a product detector
b a BFO
c another IF
d an RF pre-amplifier stage.

18 If a moving coil meter is used to measure alternating current
a there will need to be a diode in the circuit
b the figure measured will be the peak AC value.
c a series capacitor will be needed.
d a large value shunt resistor will be needed.

19 A neighbour's broadcast receiver suffers overload when a novice station transmits. This problem
a could not be reduced by reducing the novice station power output.
b may be due to harmonics in the amateur signal.
c may be due to insufficient selectivity in the broadcast receiver
d is usually caused by random parasitic oscillations.

20 In a 28MHz, three element Yagi antenna, the driven element should be:
a approximately 10 metres long.
b impedance matched to the feedline.
c the longest element
d electrically coupled to the other two elements.

21 The mixer stage of a single conversion superheterodyne receiver mixes:
a two radio frequencies to provide the IF
b audio and radio frequencies to provide modulated RF
c two radio frequencies to balance out the carrier.
d the received signal and the first IF to produce the second IF.

22 If a novice transmitter causes 'splatter', the operator should:
a fit a high pass filter at the transmitter output.
b neutralise the transmitter power amplifier
c reduce the transmitter power output.
d reduce the modulation level.

23 For an AM transmitter to be 100 percent modulated the power in the modulating signal must be:
a twice the power in the carrier
b one third the power in the carrier
c half the power in the carrier.
d half of the total power output.

24 The ionosphere:
a is a magnetic field around the atmosphere.
b includes the layers of charged particles in the upper atmosphere.
c is present only during daylight hours.
d refracts the very high frequencies better than the high frequencies.

25 A transformer has a primary secondary impedance ratio of 64:1. Its turns ratio will be:
a 64:1
b 8:1
c 1:4.
d 1:8.

26 For a transistor in the common emitter mode, the current gain' is the ratio of:
a emitter current to collector current
b grid current to anode current
c collector current to base current.
d base current to emitter current.

27 To protect a television receiver from the effects of a strong unwanted signal on a particular frequency, the antenna input should have a
a parallel tuned trap.
b series resonant circuit tuned to the unwanted frequency
c tuned diode detector
d series RF choke

28 The specifications for the receiver section of an amateur transceiver state, in part, '2.5kHz at 6dB down. 4.1kHz at 60dB down'. The characteristic referred to is
a sensitivity
b carrier suppression
c audio frequency response.
d selectivity

29 The reliability of a particular long distance (DX) communication path may vary during the daytime due to changes in:
a sunspot numbers.
b the amount of cloud cover along the path
c the degree of ionisation of the ionosphere.
d the angle of the moon's inclination to the earth.

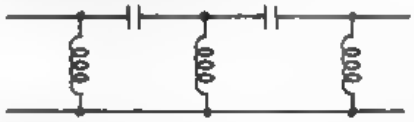
30 A primary cell:
a has an output voltage of 1 volt.
b provides the power for the first stage of the transmitter
c cannot be recharged
d cannot be used in series or parallel combinations.

31 An unsuitable type of material for use as the dielectric in a capacitor is:
a mica.
b ceramic.
c air
d aluminium

32 Class A amplifier stages operate at an efficiency of about
a 30 percent
b 45 percent.
c 60 percent.
d 75 percent.

33 A zener diode used as a voltage regulator must be:
a forward biased.
b bypassed by a bleeder resistor
c followed by an electrolytic capacitor
d reverse biased.

34 This device may be used.

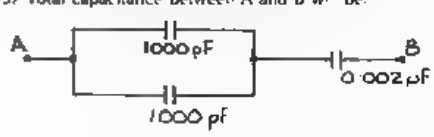


a at the output of a novice transmitter to prevent radiation of harmonics.
b at the input to a television receiver to reject a strong novice station signal.
c as a smoothing filter in a DC power supply.
d as a trap in a multiband antenna

35 The presence of standing waves on a transmission line indicates:
a loss of power in, and radiation from, the feedline
b overdriving of the final stages of the transmitter
c a mismatch between the transmitter and the feedline
d that unbalanced feedline is being used.

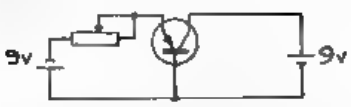
36 Parasitic oscillations may be:
a prevented by reducing the power output
b harmonically related to the transmitter output frequency.
c caused by random inductances and capacitances.
d detected by monitoring the audio output

37 Total capacitance between A and B will be:



a 2000pF
b 0.0022uF
c 1000pF
d 0.004uF

38 In this transistor the



a base is N type material.
b emitter — base junction is not biased.
c gate is N type material.
d collector current is greater than the emitter current.

39 The relationship between frequency (f), wavelength (*) and velocity (V) of a radio wave is given by the formula:
a V = f/*
b V x f = *
c V = 1/f x *
d V = f x *

40 A novice SSB transmitter operating on 3.5MHz with its carrier oscillator on 5.5MHz is likely to have a heterodyne oscillator on:
a 2.5MHz
b 7.0MHz
c 9.0MHz
d 11.0MHz

41 The three basic filter types often used in TVI and RFI prevention are:
a low pass, high pass and broad band.
b low pass, band pass and choke input
c high pass, band pass and capacitor input.
d high pass, low pass and band pass

42 In a very simple AM receiver, the detector circuit might use a
a point contact diode.
b silicon power diode.
c FET product detector
d three terminal regulator

43 The dc input power to a transistor power amplifier is calculated by:
a using 70 percent of the output power as a reference.
b multiplying the collector voltage by the collector current.
c measuring the power drawn from the power supply.
d measuring the voltage drop across the output capacitor.

44 The crystal in a high stability oscillator:
a is usually in the anode circuit
b usually operates at its fundamental frequency.
c cannot have its frequency changed.
d is not dependent on the piezo-electric effect.

45 A television receiver shows interference in the form of two parallel bands of spots across the screen. This is due to.
a 'splatter' from a novice transmitter.
b harmonics from a high powered amateur station.
c parasitics radiated by an amateur station.
d a power leak from an AC power line.

46 The inductive reactance of a coil:
a is measured in hennes.
b depends on the composition of the wire used.
c depends on its inductance and the frequency used.
d is highest at its resonant frequency.

47 Semiconductor devices are most vulnerable to:
a moisture.
b cold
c overheating.
d light.

48 A single conversion superheterodyne receiver tuned to 3.6MHz with an IF of 455kHz could also respond to an image signal on
a 3.145MHz
b 8150kHz
c 4.510MHz
d 910kHz

49 Key clicks' produced by a CW transmitter
a can be cured by use of an appropriate filter
b are due to an excessive gap at the key
c occur only when the oscillator stage is keyed.
d are the result of incorrect transmitter tuning.

50 The effectiveness of an HF mobile installation depends mainly on the
a battery voltage
b efficiency of the antenna.
c speed of the vehicle.
d artificial earth connection

■

ANTARCTIC NOT SO FAR AWAY!

A new satellite telephone system, expected to be operational within two years, will link Australia with its Antarctic Bases

The project, expected to cost about one million dollars, will give a 24 hour telephone and data link system to Davis, Mawson and Casey Bases.

POUNDING BRASS

Marshall Emm, VK5FN
GPO Box 389, Adelaide, SA 5001

CONTESTS

This is being written during the week after the 1985 Remembrance Day Contest. Like most of those who participated, I suspect, I have had my fill of operating for a while and so, better late than never, have dedicated this column to what seems to be an appropriate subject. Not terribly timely, I guess, but maybe some of you will file it for next year, or have a crack at the John Moyle or a international contest.

The change in rules this year seems to have caused some confusion, and mixed feelings. Personally I am glad that VHF was separated from HF phone, but disappointed that CW was separated from phone in the HF section. I managed to complete logs in both phone and CW and, assist in the Adelaide Hills club operation, VK5BAR, but I can't help wondering whether CW participation was reduced by the need to make 25 contacts for an eligible log. I know our co-ordinator, Ian VK5QX, is amenable to suggestions, so drop him a line if you have any thoughts on the matter

While I'm on that subject, I heard several operators complaining about the need to wait three hours between contacts on VHF, and there was a campaign going to get people to make comments to that effect on their VHF log sheets. I have to sympathise with the Z calls who have never managed 5WPM CW and therefore are restricted to VHF and up during the RD. It's just the logic which puzzles me slightly Why not allow multiple contacts on HF after, say, 12 hours a'la John Moyle? And obviously the VHF crowd would be delighted if you allowed a repeat contact after only one hour. For that matter, why not after ten minutes? Hey! Why have a time limit? Why not just see how many times they can 'work' the same station in 24 hours?

That may sound a bit silly, but I am afraid I will have to admit that contesting in general seems a bit silly to me if one is in it to 'win'. If that is your only motivation you will always be wiped out by somebody in a better part of the world, or who has better gear, or a higher tower, or is willing to cheat. There are good reasons for participating, but you've missed the point of amateur contests generally if you are so concerned about personal, or divisional, glory that the rules themselves become a battleground

So enough preaching, let us talk about how to operate in a CW contest.

The following paragraphs will form a general introduction to the subject, and I hope, encourage some otherwise timid souls to get their feet wet in what should be a valuable educational and practical exercise

There are so many different aspects of CW contest operation that it is difficult to decide where to begin. There are CW Only contests, contests with separate sections for CW operation, and mixed mode (open) contests. One can enter as a serious contestant, use CW to supplement a phone score, or participate on a casual basis with no intention of submitting a log. There are some fringe benefits to participation in a CW contest which make it attractive to the 'non-contesters' among us...you can experience a wide variety of sending styles and speeds in a very short time, and significantly improve your 'ear' or copying ability while you are at it. As with any contest, the basic point of it all is to make as many contacts as possible, as fast as possible. Therefore contest exchanges are cut down to the bare bones. A typical contest exchange requires call sign, signal report (RST), and a contest number (serial number, zone, or age, etc) and would look something like this.

STATION 1 CQ test de VK9ABC K
STATION 2 De VK2DXP K
STATION 3 De VK5FN
STATION 1 VK2DXP NR 5 N N TT8 BK
Station 2 QSL UR NR 5NN 132 BK
Station 1 R GL E E CQ test

There isn't much to it, is there? And when you consider that most of these exchanges take place at 20-30WPM or faster, the contact rate can be very high indeed

Looking at the sample exchange piece by piece, the first element is the CQ contest call Quite often this is specified in the contest rules, but if not, common sense and efficiency should prevail The Remembrance Day Contest call is CQ RD; the John Moyle Field Day call is CQ JM or CQ FD' when in doubt CQ TEST is just fine The call should consist of the CQ, your call sign, and K sent only once, allowing three or four seconds for a response before repeating

The answer to a call should be simply DE followed by your call sign. This presumes that if you answer on the same frequency, you must be answering the CQ

The station calling CQ should send the responding station's call sign once, because there may be several stations answering, and will then give the signal report and contest number Repeats are usually not given unless requested. Signal reports are usually given as 5/9/9 regardless of the facts of the matter, and I shall refrain from making any further comment on that subject aside from noting that reports were not even required in the '85 RD. Nines and zeros are coded because they are so common (N=9, T=0), so an exchange of 5/9/9 008 would be sent as 5NN TT8. BK, or break, is then sent to invite the other station to transmit. Often it is sent as B (space) K, and sometimes K is used by itself Sometimes the break is preceded by 'QSL?'

As is the case in phone contests, it is up to the station which called CQ to send any pleasantes (such as GL E E) and he may or may not listen for an acknowledgement (E E) before calling CQ again. Unlike most CW activities, successful participation in a contest does not depend to any great extent on your copying speed for 'normal' CW You can generally work a station calling CQ at twice to three times your normal copying speed. Firstly, the format is so standard sed that all you have to pick out is a call sign and a number You can listen to two or three calls before answering in order to be sure of the call sign, you can listen to the next contact the guy makes in order to verify the number Secondly, asking for a repeat is as simple as sending a question mark. For example, if you missed the number, you send 'NR? K.' Finally, although you may start out listening to CQ calls three or four times, it doesn't take long before you can pick them up first time. It is generally recognised that any 5WPM novice can recognise a single character at speeds up to 50WPM, a string of three or four characters at 25WPM is not difficult

As far as sending speed is concerned, you should send as fast as you can and still be readable at the other end But as I've said before, it is only reasonable to send the minimum to get the job done. If the other station wants a contact, (why else would he be in the contest!) he'll be patient

That pretty well covers the aspects of contest operation which are unique to CW; questions of whether to call CQ or 'search and pounce', when to change frequency or band, when to have supper or try to pacify the XYL...all these are matters for judgement based on experience and CW is no different from phone, in that regard

By all means, dust off that key the next time a contest is on and hand out a few numbers . you will probably be hooked 73 FER NW

AR

CLUB CORNER

BALLARAT AMATEUR RADIO GROUP

The Ballarat ARC will again hold 'HAMVENTION 85' during the weekend of 2nd and 3rd November 1985. This years hamvention will follow the lines of previous, very successful hamventions.

A dinner will be held on Saturday and on Sunday, a giant trade display along with the usual amateur radio activity events will be held.

A barbeque lunch and afternoon tea will be provided on Sunday, along with special entertainment for members of the family not involved with amateur radio.

Attending amateurs are asked to bring their own QSL card to put on the display board. It could win a prize for the most interesting QSL card.

Further details may be obtained from Kevin Hughes VK3WN on (053) 35 5011.

The venue will be the Marty Busch Recreation Reserve, seven kilometres south of the Ballarat City Hall, on the Ballarat to Colac Road.

See you at 'Hamvention 85'

Contributed by Kevin Hughes VK3WN **AR**

WESTERN ZONE OF THE VIC DIV

At 01 30pm, on 21st September the Western Zone will hold a members General Meeting at the Lake Bolac Hotel. Come along.

Join the Western Zone 'Hook-up' each Monday evening at 1000LTC. The 'Hook-up' is cross band, dual mode on Ch 7 and 3 585MHz, with the call sign VK3BWZ.

Office Bearers for 1985-86 are:
PRESIDENT Geoff Smith VK3ADB
VICE-PRES Ken Taylor VK3KAV
JUNIOR VICE-PRES David Timms VK3YLV
SEC/TREASURER Jim Wright VK3CFB
COMMITTEE VK3KAV, VK3YLV, VK3CAI, VK3XFC, L31266, VK3DLO, VK3ANH
TECH OFFICERS VK3KAJ, VK3AGD
INTRUDER WATCH Ken Taylor VK3KAV
REPEATER COMM VK3AGD, VK3YLV,VK3AEX, VK3BFF, VK3KJH
STATION OFFICER Oliver Gellert VK3AEU
WICEN OFFICERS VK3KAV, VK3AEU, VK3DWL
AWARDS MANAGER Maurie Batt VK3XEX

Contributed by Geoff Smith VK3ADB

DEVIL NEWS FORM THE NW BRANCH

Attendance at the recent meeting was good, with 25 present. Apologies were received from VK7s: WJ, SF, AH and BV. Jack VK7WJ was on holiday on the main island. Syd VK7SF is also on holiday, but he has travelled a little further afield — he is in England and plans to visit Cardiff.

CLUB CARD: It was decided, at the meeting, to have a special club QSL card printed so the club may reply as a club, to QSLs received.

MEMBERSHIP: A new member from America, K6KTO was welcomed to the club.

REPEATER NEWS: As more money becomes available, it is hoped to make some improvements to repeater VK7RNW. At present the repeater is performing adequately.

ACTIVITIES: The first broadcast on RTTY by the club was very good with five replies to the broadcast. This was very encouraging and there is now a regular broadcast each Friday night on 3.630MHz. All who receive the broadcast are welcome to join in.

YOUTH AFFAIRS: VK7NAE has been doing some PR at his school and has been explaining the benefits of the WIA. He is hoping to encourage visitors to club meetings.

CLANGER AWARD: Was presented to Ivan VK7XL for miscellaneous activities leading up to and about trying to stop a cow from choking by jumping up and down on its stomach. The general belief was that he was using it for a trampoline.

REMEMBRANCE DAY: Volunteers operated the club station VK7NW for the RD Contest. Stations who participated were: VK7s: WP, WN, ZAP, KY, ZBT, EQ, WZ, WL and AX.

QSL BUREAU: The QSL section of the club is operating quite well, although there are not many outgoing cards due to the conditions with propagation.

AUCTION: An auction followed the meeting with Ron VK7RN acting as auctioneer. He performed so well we think he could 'sell honey to the bees!' The largest item sold was a Siemens Teleprinter. A good time was had by all.

It was anticipated to hold a video night after the auction but, unfortunately the auction took up too much time so the video was held-over for a future time. However, the auction was such a success it is hoped there will be another one, before too long.

The club extends sympathy to Terry VK7BV, on the death of his father.

Cheers until next time.

Contributed by Max Hardstaff VK7KY **AR**

MANLY WARRINGAH RADIO SOCIETY

The MWRS has been testing a 70cm voice repeater over the last few months on 438.175MHz and is presently awaiting final approval. Increased use of the 70cm band in the local area, encouraged the group to develop a new repeater co-sited with the existing 2 metre repeater, VK2RMB 146.875MHz, providing mobile coverage through the northern beaches of Sydney. The group has recently started developing a 2 metre Packet Repeater, to be licensed and co-sited with the voice repeaters at Terrey Hills.

Meetings are held every Wednesday night, with business meetings on the second Wednesday of each month, at 7.30pm. All are welcome to attend, including out-of-town visitors. Location is at the MWRS club rooms, in the Warringah Volunteer Services Centre, Aumuna Road, Terrey Hills.

Contributed by Steven Blanche VK2KFJ
Publicity Officer MWRS

SYDNEY AMATEUR DIGITAL COMMUNICATIONS GROUP

The SADCG is a non-profit organisation, set up to provide help and information to amateur radio operators wishing to experiment with amateur packet radio. We have encouraged the formation of similar groups in other states.

Since the formation of the SADCG, there has been diversification into hardware and software development of both packet equipment and packet protocols, primarily based on Canadian and US activities.

Marketing of packet equipment was a task previously done by the SADCG, but has now been passed on to a professional marketing company.

Further information of this group activities and news may be obtained from Box 231 French's Forest, NSW 2086.

Submitted by Steven Blanche VK2KFJ
Secretary SADCG **AR**

Your best friend could be the next WIA member. Persuade them to join today . . .

AR SHOWCASE

NEW MOBILE RADIOS

The first of the Victorian Police's new mobile radios have gone into action with excellent results.

The 1885 UHF radios, valued at $3.2 million, have been supplied by Motorola Australia's Mulgrave factory in Melbourne and are the latest in state-of-the-art communications equipment.

The radios have been enhanced to meet the operational requirements of police in Victoria. They prevent general interference on allocated police frequencies, have the facility to be used as a repeater from a small hand-held portable, and scan several police frequencies as desired by the operator.

In addition, all 1885 radios can be quickly adapted to prevent eavesdropping or scanning of confidential police broadcasts, if desired. Several have already been tested by Special Task Force and Surveillance groups. They are proving ideal for the job.

Assistant Commissioner (Services) Mr Newnham said, "The new equipment gives police a flexibility and capacity not possible previously. The number of channels has been expanded from a previous 10 to 144 and the capacity to have voice confidentiality if desired, in the one radio is most cost effective".

"The new radios are installed in police cars, motor cycles, Water Police and Air Wing units", he added.

For further information contact Martin Cahill, Motorola Australia Telephone (03) 561 3555.

AR

Constable Lisa Hardeman of Russell Street, demonstrates the new Motorola equipment.

QSP

ENCODING

A method of encoding computer data, claimed to be many thousands of times more secure and half the price of the American DES encryptor industry standard, has been announced by a Western Australian telecommunications group.

Perth based Ran Data Corporation Ltd launched its (EKES Encryptor) in London recently. Encryption is increasingly being used in electronic funds transfer, message transmission, and will play an important part in the new era of home banking.

The DES system employs a 56 Bit (key), but questions had been raised as to its adequacy. Ran Data uses a 32,000 Bit (key) system which was accepted as statistically unbreakable using present technology.

Contributed by Jim Linton VK3PC

VK2 MINI BULLETIN

Tim Mills VK2ZTM
VK2 MINI BULLETIN EDITOR
PO Box 1066, Parramatta NSW 2150

The VK2 Division s continuing the 75th Anniversary Year through until March 1986, when the 'Time Capsule' will be closed off To mark the end of the year, the 1986 VK2 Seminar will be held, together with the judging of the Homebrew Contest'. In addition, March 1986 Amateur Radio is planned as another VK2 special feature ed tion

During this month, October 1985, there are several VK2 activit es. One is the 75th Dinner, which will be held on Saturday, the 12th. Bookings have closed, but there may stil. be room if you contact the Divis onal Office, without delay

Then there is the JOTA weekend At the end of the month, the South West Convention will be held at Wagga, which includes the 'National Foxhunting Champ onships' over the weekend of the 26th and 27th. During the same weekend, WICEN will be involved in the 24 hour communicat ons exercise on the Hawkesbury River for the 'Outward Bound Canoe Classic'

HOME BREW CONTEST

Entries are inv ted for the 1985 Home Brew Contest' The closing date wil be 1st March 1986 and entry forms and other details are available from the Divis onal Off ce

DIVISIONAL LIBRARY

Aub Topp VK2AXT, has upgraded the cross indexes at Parramatta If you can attend the library, you will be able to find the material we have under its specific heading. f you are unable to attend, then a written or phone request w l enable a photocopy of the reference page to be sent to you. From this you will be able to select the particular item/s, and a loan of the magazine arranged It should be noted that postage costs on books and magazines can be high. Where permitted, copying of the item could be a cheaper alternat ve

Work is currently underway to increase the storage capac ty of the brary area From time to time, donations of books and magazines are received for which we are very grateful. In many cases, particularly the Australian publ cations like EA and ETI, adequate copies already ex st and we either have to decline or pass them on to groups and clubs. Sometimes the odd copy helps make up a set. However, we are interested in many of the overseas publ cations and in part cular, the o der technica books, which were often imited pr nt ed tions So, if you are faced with a c ear out of publ cations because you no longer have the room, or you have to dispose of a deceased estate, would you first contact the Divisional Office. It is l.k y that we would be interested.

TAPE LIBRARY

Now to a ibrary of a d fferent kind The Divisional Office mainta ns a copy — in VHS — of the majority of the mater al n the Federa Video Tape Library New mater al is added at ntervals and a SAE to the office w l obtain a ist and borrowing conditions, e ther for your club/group or individual members.

ANOTHER ANNIVERSARY

While the WIA celebrates its 75th, not far behind in the age stakes, is the Waverley Amateur Radio Club, who first received the r licence on 18th August 1920. Duane VK2VE, s prepar ng a history on WARC VK2BV to appear n Amateur Radio at a future date

ANNUAL GENERAL MEETING

The 1986 AGM wil be held on Saturday, 5th April 1986 A reminder that the Divisional year for reports and financial matters ends on 31st December 1985. Further reminders closer to the time

RADIO FOR THE PRINT HANDICAPPED

2RPH on 1.629MHz, Radio for the Print Handicapped needs volunteers with technical experience and qualifications for occasional assistance in maintaining their on-air equipment. Further details from the station at North Sydney on (02) 92 8056, during business hours.

BROADCAST ROSTERS

Another period in the roster has commenced from October to December To help maintain the numbers and the spacing between each day of duty, as far as possible, additional announcers and engineers are always welcome. Contact the Divisional Office or Jeff VK2BYY, OIC, Dural, for further details.

JOTA"

There is still time to help with this years JOTA. Many groups have the venue, they just need the amateurs. Contact the VK2 JOTA Co-ordinator, John VK2NDJ on (02) 772 3437, as soon as possible

CONFERENCE OF CLUBS

The next C of C will be held at Westlakes ARC, Teralba on Sunday 3rd November. The agenda has closed, but your club needs to be represented on the day. Check and find out who will be your delegate and let him know your views on any matter to be discussed

SATELLITES

Do you own a Commodore 64? Are you interested in satellites? For a $15 donation to AMSAT funds, you can obtain a copy of the excellent VR85 satellite mapping and tracking programme, with full instructions for the cost of a disk. Contact Bruce VK2DFH on (02) 84 5886 for details

STUDY CLASSES

Will your club or group be conducting any licence study classes in early 1986? If so, would you let the Divisional Office have the details to be filed for the enquiries we are always receiving. One course already advised is a Novice course to commence on 30th January It is being conducted by Gladeville ARC. For details, contact either VK2JX on (02) 428 2462 or VK2LT on (02) 516 1271. A further reminder, that the Correspondence course, conducted by the VK2 Division, is always available, should you be unable to attend a personal class.

VK2WI — DURAL

Following the lightning strike in February, an inspection of the towers at VK2WI was carried out. No damage from the strike was found but, it was noted that it was reaching the time that general maintenance was required to them.

Accordingly, Divisional Council has authorised a commercial firm to undertake the tightening and replacement, where required, of the nuts and bolts on the main tower.It was decided that both towers should be painted, as some of the original finish is starting to deteriorate. A rub back, undercoat primer and a final 'harbour bridge grey' paint has been carried out on the beacon tower. By now, much of the work on the main tower will be completed

A couple of months ago, something of doubtful parentage paid a visit and cut some of the coaxial cables to the HF antennas.

The construction of the 23cm beacon is well underway When installed, it will be on the frequency of 1296.420MHz After some tests into Packet Radio at VK2WI, Council has started the paperwork to apply for a Packet licence. Equipment and frequency is yet to be determined.

TWO METRE INTERFERENCE OF THE RF KIND

The increasing development of paging networks increases the problems to the 2 metre band. The majority of the paging systems use frequencies in the 148 to 150MHz sub-band. This is remote in frequency terms from the high-band commercial channels, but is adjacent, with no guard band, to the amateur band. The top megahertz repeater inputs are from 147.625 to 147.975MHz The first pager channel is 148.0125MHz In Sydney, where the majority of the top megahertz repeaters have been developed, there is also a large number of pagers, both for the publ c telephone access as well as private paging companies. It appears recently that VK2RLD 7375 has had a pager installed in near prox mity to its site .t has been taken off air while a so ution is found

VK2ROT 7075, near the city, is suffering from pagers a couple of kilometres either s de of ts site VK2RWS 7150, on the North Shore, gets its share of problems, too.

This problem has occurred in other areas, also. Currently, discussions are underway between the SRC and FTAC for possible solutions

PACKET RADIO

This new mode is starting to gain converts in VK2 With interest, comes the need to talk (type!) further and with VK2's terrain and distances comes the desire for repeaters. It appears, at this stage, that interest for inter area connections starts n Sydney and goes north along the coast So far, repeater appl cations have come from Hornsby and District ARC, Manly Warringah RS, Westlakes ARC, the D vision and WICEN Part of the experimental work at VK2WI was to test a frequency of 144.800 MHz, which got away from the nearby pagers While much of the Packet work can be carried out around 147.575 and 147.600MHz, these frequencies may present a problem with sharing a site where either a top megahertz repeater exists or a pager.

Packet uses a single frequency to transceive on and the voice repeater, its two channels. To place both on the same site may cause both to desence each other, the packet receiver from the voice transmitter and the voice receiver from the packet transmitter. A solution here is a frequency towards the lower end of 2 metres, unless one l ves in a channel 5A area. Th s is another area for d scussion and solution for the SRC and FTAC.

The State Repeater Committee would be interested in hearing opinions on Packet frequencies for 2 metres.

In a recent Federal tape, there was a call for groups with an interest in Packet to register this interest with the Federal Office, at PO Box 300, Caulfield South, Vic. 3162, so that you can participate in the gu de nes for this emerging mode.

WICEN

Mentioned elsewhere is the exercise to be held on 26th and 27th October on the Hawkesbury. In November, there is an exercise with the Schofields Air Show on the weekend of the 9th and 10th and the annual SET on 24th November.

AWARDS

Many clubs and groups in VK2 have an award A request is being made to those who issue awards, to make a sample copy avai able for display, along with the rules, at the Divisional Office

SLOW MORSE ON 80 METRES

Since the early sixties, a nightly session has been transmitted by a host of vo unteer stations on 3.550MHz. The early part of the evening from VK2BWI and then fo lowed by VK5 The frequency seems most popular for everything else and there are times when copy is difficult for our future amateurs. Some of the problem comes from Japanese fish ng boats operating in international waters. Wh le the segment 3.500-3.700MHz is primary amateur within Australia, it is an equal share in Region 3 between amateur fixed and mob le On the lower side of 3.550, there is RTTY operat on and al round there is the crowding of phone stations. a l trying to find a clear space.

The frequency choice comes from the time when the CW/Phone point was, I understand at 3.550MHz

In the crowded 80 metre band, it would most likely suffer no matter where it was so perhaps it would be best if we all could give 3 550 a little breathing space so that the future users of the 80 metre band may learn a little sooner. Up the top end of the 80 metre band, on 3 699MHz is VK2RCW, as reported last month, so there is further practice there after you finish with the evening sessions on 3 550.

REPEATERS

UHF repeater VK2RRS 8475, was taken out of service in the Parramatta region during August, for a major overhaul. VK2REE 8325 to the north/west of Taree went into service during the winter, on its final site. The channel 7300 band planned for ATV liaison, will be used by the future Sydney region ATV repeater. The TV side will have an input at ATV1 in 70cm and the output at 50cm on channel 34. An application for this service is currently in the course of development. Parkes and District ARC advise that their system VK2RWM 7100 is now fully operational from their site near Grenfell. Good coverage has been reported. It fills the region which was previously on the outer service areas of VK2RGF 6850, VK2RWG 6750, VK2RAO 6700 and VK2RRT 6900 in the central west of the state.

As has been reported previously in these notes, repeaters have generated their bad side with anti-social behaviour. Sydney has been through another wave of such behaviour on VK2RWJ 7000. Many amateurs think it just a matter of a complaint to the Department and DOC will come out, locate and prosecute the offenders. When this does not happen overnight, they complain, come on air and some even act in such a way that it is hard to tell who is who.

For a successful prosecution to be made, evidence must be obtained which will stand up in court. Much of the anti-social acts thrive because some amateurs appear to crack under the strain. Others appear to like to indirectly communicate with an offender, either by abuse at him or talking about him. Still others make on-air comments as to who they think it is or the bearings or signal strengths of the transmission. All these actions help encourage this behaviour to be constructive, one should observe and report findings, desirably through the Division.

At intervals, there are some offenders apprehended and for a time the frequency returns to a degree of normality. It is then that all amateurs should read up on the handbook and operate correctly, with decorum. We should respect the privilege that we have with access to the radio spectrum. Now-a-days, many services in the radio spectrum have the added privilege of 'self regulation', we should rarely have to resort to calling in others to do it for us.

BREAK-IN AT THE DIVISIONAL OFFICE

During Sunday evening, 11th August, a robbery occurred at the Divisional Office in Parramatta. The forced entry was through the ground floor office, which gave the intruders access to the stairs. The object of their visit was the office safe. They brought with them, some oxy equipment and a range of engineering tools. The safe is used by the Division as a fire proof second storage. It must have been a disappointing nights work for them as they netted less than $150 in petty cash from both offices.

They left the police a range of fingerprints, other identification and the full set of oxy and tools.

Little damage occurred to the records but it left us with a mess and repairs to the property. Some interest was shown in the key register. The Divisions key system has been re-keyed.

The break-in left one with the impression that, they were rather amateurish at their 'trade'. The investigations are being conducted by the Parramatta police, to whom any information should be given. **AR**

VK3 WIA NOTES

NEW MEMBERS MADE WELCOME

The Victorian Division of the WIA would like to welcome the following members who joined in the month of July.

P R Adams VK3XNI, Stephen Bell VK3XSG, John Brennan VK3KKN, David Burden VK3VFO, H R Campigli VK3BIA, R C Carter VK3CAZ, George Christie VK3XEC, Robert Crowle, Gordon Esam VK3AGE, Eric Ferguson VK3KF.

David Cronblat, Ronald Harding VK3KKQ, Barry Hipgrave, Graeme Ireland, Eric Kelly, J R Kemp VK3CAY, William Leeming VK3ALW, Stewart McLean VK3AIA.

David Paulin, Daryl Quirk, Andrew Richards VK3YML, Jack Spark VK3AJK and Neil Ross VK3CUF.

WICEN NEWS

WESTERN ZONE WICEN ACTIVITIES
Regions 4,5 & 17

After organising a training school in Hamilton earlier this year, in which Derek McNiel was the instructor, the WICEN group were keen to put their newly acquired knowledge into practice. They did not have long to wait to do so.

An off-chance comment to a member of the Hamilton Light Car Club saw an invitation forthcoming for the WICEN group to provide communications for their Yulunga all-night-car-trial during the evening of 13th April to the small hours of the 14th.

The invitation was duly accepted and the afternoon of the 13th saw Ken VK3KAV, co-ordinator, Lyle VK3DWL, controller and their group setting up stations in the Annya State Forrest and the immediate hinterland.

The trial officials were, at first, a little slow to make use of the communications facilities, however, as the event continued, the messages continued to increase, speeding up the search for lost cars, directing the recovery teams and passing safety messages and scores.

The event concluded with an early morning barbeque breakfast, where the competitors, officials and WICEN group got to know more of one another.

A weary WICEN group got to bed at a time when normal people were getting up but all agreed they would be willing to participate again next time.

Thanks go to Lyle, for his ability to supply maps etc for the event and for his efforts as control station.

At this time, Region 17 WICEN do not have any active members. If you live in this region and would like to participate, call Ken VK3KAV QTHR and he would be pleased to answer any queries.

Contributed by Ken Taylor VK3KAV

PARTICIPATE IN THE NATIONAL FOXHUNT — 26th & 27th October

OVER TO YOU!

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publisher.

CONFUSION!

Unfortunately, I did not peruse the rules of the RD Contest until the evening it commenced. Try as I would, I failed to unravel the complicated set of rules. I consulted a friend on air and he was not sure either.

After 27 years continuous participation, it seems a pity that I couldn't see the light. Consequently, I regret that my log or logs will be missing this year. I abandoned the whole business.

I look back to the days when the rules were sensible, simple and precise; we scored points commensurate with the effort we made. Now it is a headache to get past the rules, let alone work the contest.

Is it possible that drastic changes were motivated by bad losers somewhere along the line? Today the will to win has a queer effect on our standards. To participate in a memorial contest should be sufficient reward.

This year, I pay silent tribute to those silent keys!

Maybe I am a lone ranger but contest participation may tend to prove otherwise.

73,

Max Ives VK7MX,
Unit 51,
Cosgrove Park,
Launceston, Tas. 7250.

AR

EXPEDITIONS!!!

Many amateurs know of the Oceanic Research Foundation and the various expeditions undertaken by them.

The Executive Board of the Foundation is now looking at the feasibility of an expedition during 1986 to the Kermadec Islands in their vessel, the Dick Smith Explorer.

The Kermadecs, NE of New Zealand, are interesting from many viewpoints and it is anticipated to carry scientists in several disciplines, on board.

There would no doubt, be many amateurs who would like to make contact with this country on HF and there is scope for interesting work on VHF and possibly UHF.

To make such a trip successful, we would want some help, particularly by way of defining a radio programme and raising money.

If anyone thinks they can assist in either or both of these functions, I would appreciate hearing from them.

The Oceanic Research Foundation is a non-profit research organisation funded by sponsors and public subscriptions.

Yours sincerely,

Oceanic Research Foundation Ltd,
D F Richards VK2BXM,
The Ski Inn,
Sackville Road,
Ebenezer, NSW. 2756.

AR

AMF AMATEUR RADIO SOCIETY

To all members and ex-members of the Australian Military Forces, I feel very disappointed when I hear other service and ex-service men and women joining their particular nets - RNARS, RAFARS and RSARS. All ex-sailors and airmen are entitled to join their respective society, but unfortunately no soldier is entitled to join the RSARS unless he served in the Royal Signals RAS.

We can go one step forward, and make our society open to all ex-soldiers, no matter which army he served in, we are all friends, whether we come from England, Germany, Greece, Italy, etc. There will be no discrimination as we are all Australians. We all have something in common so we all have something to talk about, and who knows, we may find some of our lost friends.

I personally have served in many countries, with many different countrymen and many armed forces during my 37 years in the Army.

We may be able to design an emblem. So let's hear some suggestions.

I enjoy reading Amateur Radio and hope that this year will attract many new members, especially with the 75 Award, as many amateurs feel very small when you ask them for their WIA number and they reply 'I am sorry, I am not a member yet'.

73 and keep up the good work,

Yours sincerely,

Sam Galea VK2AKP/9H1GS, ex RAA, RA, RAA.
Hadidu,
57 Fairview Road,
Canley Vale, NSW. 2166.

FURTHER TO P H MCELROY!

Re the query concerning Mr P H McElroy, who was the founding treasurer of the WIA.

A gentleman of that name operated a business known as Homecrafts (P H McElroy) at 211 Swanston Street, Melbourne in the 1920/1930 era. The business catered for hobbyists, particularly those interested in model engineering electrics and woodwork.

He also published the 'Homecraft Magazine', which carried articles covering the construction of various electrical appliances, model locomotives and railway supplies, in addition to radiocomponents. He later sold the business, which was later transferred to larger premises, but still traded under the Homecrafts name, but only in radio and electrical goods.

I purchased my first radio components from Mr McElroy, in the late 1920s.

Unfortunately, I have no idea when he first established the business.

73

I Kelly VK3AFD,
28 Tottenham Street,
Carnegie, Vic 3163.

AR

HALLEY'S COMET

After twelve months of research and endeavour, in co-operation with other amateur enthusiasts and astronomical groups, it would appear that the apparition of Halley's comet will have no effect on the HF bands, as the Comet itself has no radio emissions. There is the co-incidence that the comet's arrival parallels with every seventh sun spot minima.

The VHF bands however, whilst not being subject to any known interference, does offer an opportunity for meteor scatter enhancement as the result of the new meteor trail, associated with the comet's 1985/6 apparition. To this purpose, it will be very necessary to evaluate the density of the trail and compare it with the present trail associated with the 1910 Halley comet apparition manifested in the eta Aquarid and Orionid meteor showers in May and October of each year. To date these observations have been visual as there is, as yet, no amateur radio group set up to make recorded radio observations.

Just recently, during the last eta Aquarid meteor showers, visual observations over Australia recorded meteorite entry into our atmosphere at over 100 per hour. (Remember, that this is from a trail that has been shedding meteorites into our atmosphere every May and October for the last 75 years). The astronomical societies predict that radio observations could be three times greater than visual, and that there is a much needed development in this field.

I believe that there has been some work done in this field but, it seems to have lacked in continuity and I have not been able to contact anyone who is involved or has any equipment for such projects.

Current investigative work is being conducted between VK5ALH and VK2AFX on 2 metres. Previous 6 metre contacts have been accomplished and it is necessary to continue this work, as well as look at the possibility of a new project to be initiated on 10 metres.

It is worth noting that the duration of meteor scatter propagation is proportional to the frequency ie the higher the frequency, the shorter the duration, and it appears that 175MHz is about the top cut-off point and to date 21MHz appears to be the bottom cut-off point. (There are other factors involved, such as the size of the meteorite, its speed and angle of entry, etc).

Further details regarding these projects can be obtained from VK2KA, VK3AJU, VK4UQ, VK5ALH and VK6MY, all QTHR. Mostyn VK5ALH, in particular, is very interested in amateurs in South Australia, who are prepared to set up a study group and arrange development programmes. Mos is also the chairperson of the Halley Comet Net, held each Tuesday and Thursday, 0430UTC on 14 160 +/- QRM or alternatively 7.070MHz. If enough interest is shown, it is planned to have a net, same time and frequencies on a Sunday for those who cannot make the mid-week scheds.

Much has yet to be discovered from the study of meteors and this study will not cease when Halley disappears from our skies. It is only the beginning and in co-operation with the various astronomical societies, can be a vast and exciting experience. It is known that governmental instrumentalities are very interested in this field also and are probably more advanced than we are led to believe. The fact that the eta Aquarid and Orionid meteor showers are usually mentioned in press articles, and probably the best known, they are non the less, part of many (in fact there can be several showers a month), that can be used for meteor scatter. There are, in reality, about a dozen meteor showers per year that afford reasonable contact results.

Continual monitoring of research may provide some changes in our present findings. If any changes do come to hand, every endeavour will be made to rush it into the presses and broadcast it over the WIA Federal News and WIA Divisional News Broadcasts.

Yours fraternally,

C D Rice VK6MY,
Chairperson,
Comet Sub-Committee,
PO Box 10,
West Perth, WA. 6005

AR

IN REPLY TO . . .

The following letter has been published in THE LANCET, 29th June 1985, in reply to the letter published in Amateur Radio, August, page 62. The letter is in reference to Leukaemia Risk in amateurs.

In his letter, Dr Milham uses the 'silent key' (recent deaths) information from two US states published in the ARRL's magazine QST to claim an increased incidence of certain leukaemias in a group of amateur radio operators as compared with a 'normal' population. While some previous studies have suggested a link between leukaemia and occupational exposure to mains frequency electromagnetic fields (Ref 1,3), other studies have not found a correlation (4). The question needs further careful study but we disagree with Mr Ham's conclusion that there is a casual link with amateur radio operations, and we also disagree with the selection of a group of radio amateurs to test this hypothesis.

The operating habits of amateurs are highly varia-

ble and often not very extensive. A 1980 survey of 8895 amateurs in the USA and Canada showed that typical amateurs spend 6.1 hours per week on amateur radio (5). Much of this time is itself highly variable, for most of it is spent listening, with any transmissions made intermittently, with highly modulated (fluctuating) wave-forms, giving low average radiated power. Milham also states that 35 percent of the Washington amateurs were employed in electrically related occupations. Were the additional cases of leukaemia related to this occupational exposure or to the lesser time spent on amateur radio? Furthermore, silent keys are not representative of the amateur radio community as a whole, deaths being listed in QST only when reported by a family member. Therefore silent keys tend to be those particularly prominent in amateur radio just before their deaths. Amateurs are also more well-to-do than the general population (5), which may be an added selection bias. The whole question is further complicated by the possibility that toxic chemicals were commonly present in electrical/electronic equipment in days past (1).

There are pitfalls associated with the use of ratios when the population exposed to a risk (and the exposure) is not adequately defined (6,7). The numerators of the ratios are known but not the denominators. MacMahon and Pugh (8) explain that 'numbers of cases of a disease are sometimes expressed relative to the total number of cases of all diseases, rather than to the population. For example, the number of deaths ascribed to a particular disease may be expressed as a proportion of all deaths. This value is known as the proportional mortality rate (PMR).

Such proportional rates do not, of course, express the risk of members of the population contracting or dying from the disease. Even Monson (9), originator of PMR and cited by Milham, offers similar caveats, which Milham seems to ignore.

For these reasons, and because of the other defects of Milham's study in regard to sample sizes, we believe that his hypothesis that electromagnetic fields are carcinogenic remains purely speculative. On the basis of the data we have seen, it cannot be assumed that participation in amateur radio activities increases the risk of leukaemia.

Milham's study has methodological weaknesses similar to those admitted by Wertheimer (10) in respect of her studies associating mains frequency fields with cancer incidence (promotion) in children and adults (11). Milham is less modest; he goes all the way and offers a carcinogenic hypothesis.

Raymond B Wangler,
Chairman, Committee on the Biological Effects of RF Energy.
Peter M Bradley
W D Clift
David Davidson
Lawrence Higgins
Kerry Sandstrom
Roger Stephens
ARRL, Newington, Connecticut, 06111, USA.

Wright W, Peter JM, Mack TM. Leukaemia in workers exposed to electrical and magnetic fields. Lancet 1982; 1260-61.
2 McDowall ME. Leukaemia mortality in electrical workers in England and Wales. Lancet 1983; 246.
3 Coleman M, Bell J, Skeet R. Leukaemia incidence in electrical workers. Lancet 1983; 982-83.
4 Environmental health criteria document no 16: radio frequency and microwaves. Geneva: World Health Organisation; 1981.
5 Sumner D. Survey of amateur radio, 1980. QST 1981 March: 65-118.
6 Short SS. Fundamentals of biostatistics. New York: GP Putnam; 968.
7 Hill AB. A short textbook of medical statistics. London: Hodder and Stoughton; 1977: 265-72.
8 MacMahon B, Pugh TF. Epidemiology principles and methods. Boston: Little Brown; 1970: 59-60.9 Monson RR. Analysis of relative survival and proportional mortality. Computers Biomed Res 974; 7: 33.
0 US Court of Appeals, 7th Circuit. Decision in County of Marquette, Michigan, Caspar W Weinberg, No 84-1569; p21 (decided 20 Aug. 984).
11 Wertheimer N, Leeper E. Adult cancer related to electrical wires near the home. Int J Epidemiol 1982; 11: 345-55.

AR

FUSING CONFUSION

In reply to the letter from Mr George Cranby VK3CI published in the open column 'Over to You!' in the August issue of Amateur Radio, that appeared under the heading 'Fusing Error', referring to my article 'Electrical Safety in the Amateur Shack', published in May issue.

The writer expressed concern regarding Par 6(b). In the article, Par 6 referred to equipment and requirements, of mains operated, and connected to supply via flexible cord.

6 (b) reads "Fusing, in both active and neutral of supply lines".

Mr Cranby is correct in his concern regarding a blown fuse in the neutral conductor at the equipment. He is, however, incorrect in applying SAA Wiring Rules to that portion of the article.

I would suggest that SAA 3000 Wiring Rules applies to 'fixed wiring', and not to equipment that is connected to supply via flexible cords.

A more suitable specification for research may be AS 3100 (1981) 'Approval and Test Specification for Definitions and General Requirements for Electrical Materials and Equipment'.

From my own experiences with a large variety of radio and electrical equipment (connected to mains supply via flexible cords), it has been a common practice to fuse both of the supply lines at the equipment.

The reason for this is the uncertainty of just which is the 'active' when flexible cords and possibly extension leads are involved.

It is a nice feeling to know that, if your mains transformer breaks down to earth on the primary side (in your power supply or whatever), that you have both ends of the winding protected by a fuse.

I would concede, that I now recall that 'more modern' equipment of the 'better quality' does have built into it, protection on the supply side in the form of a double pole miniature fixed setting, over current, circuit breaker.

I see this as the answer to the problem.

The article was produced by me as a discussion aid, in a lecture to the Radio Enthusiasts Club of the Blind and delivered under the same heading.

A copy of the article was submitted to the Chief Electrical Inspector, Victoria, for his comments. (A copy of his reply follows this letter). He showed concern regarding item 3(b) and the explanation of the principle of operation of core balance earth leakage circuit breaker protection.

It is interesting to note that, in the reply from Mr L J Francis, the Chief Inspector does not show any concern for item 6(b).

In the same column, August AR, Mr Colin Heath VK5FX, expressed concern regarding the lack of a clear and suitable warning that the earth leakage protection will only give protection on the primary side of a mains transformer.

The concern expressed is justified and he is totally correct in his understanding of core balanced earth leakage protection, and its limitations.

Mention was made in the article, of the possibility of electric shock in conditions where the circuit formed, was balanced and the core would not detect it. No mention was made to contact with any live parts on the secondary side of the transformers other than Par 6(d).

I thank both readers for their interest and contribution.

Yours sincerely,
Fred McConnell VK3BOU,
89 Latrobe Street,
Bulleen, Vic. 3105.

With reference to your letter and a copy of the article 'Electrical Safety in the Amateur Shack', the article of which would be of assistance in promoting electrical safety has been perused and comments follow.

The reproduction of the information in Braille would be of great benefit to blind persons and the comments made are not offered as criticism, but rather to contribute to the value of the document.

Item 3(b) generally would not be correct for a subswitchboard supplied by the multiple earthed neutral system which is used almost universally in Australia.

This system relies on the continuity of the neutral conductor of the mains or sub-mains and, therefore the neutral is not switched unless special conditions prevail, such as changeover to a stand-by generator.

In relation to the explanation of the principle of the core balance earth leakage circuit breaker form of protection, the explanation could read as follows:

"The core balance earth leakage circuit breaker is interposed between the supply and the operator in such a way as to interrupt the passage of current if minute values of leakage current flow to earth. The sensing core for the circuit monitors the normal load current between the active and neutral conductors but if the earth leakage current exceeds (say 30mA), the detected current is amplified, then used to trip the circuit breaker".

Apart from the suggested amendments as set out above, the article would have been of interest and help to radio enthusiasts.

Yours faithfully,
L J Francis,
Chief Electrical Inspector, Victoria
State Electricity Commission of Victoria,
Box 2765Y, GPO,
Melbourne, Vic. 3001.

AR

HELP!!!!!

I live on Rodriguez Island and hold the amateur radio licence 3B9FR, issued by the Director of Telecommunications at Mauritius this year.

I am the first licencee on the island and my licence has the privileges of Region 1, including the WARC bands.

I taught myself radio theory and Morse to attain my licence.

Up until now I have not operated, due to the economical condition on the island, and I am seeking help to find some old radio equipment suitable for an amateur station.

Thanks in anticipation.

Yours faithfully,
Robert Gerard Felicite 3B9FR,
Victoria Street,
Port Mathurin,
Rodriguez Island
Indian Ocean

AR

TOWER ASSISTANCE

I wish to express my appreciation to the WIA for the assistance given to me regarding my negotiations with the Portland Town Council for a permit for a 60 feet (18.3 metre) antenna tower.

Special thanks to Mr A Noble VK3BBM for his personal involvement in assisting me in formulating and lodging an appeal, and to his XYL for her overnight hospitality on the day of the appeal hearing.

I now have the necessary permit to erect the tower, so I suppose the hard work now begins.

Yours fraternally,
K Simpson VK3XFC,
58 Wade Street,
Portland, Vic. 3305

AR

LEUKAEMIA AND RF

I read, with interest, the letter detailing leukaemia deaths of operators in Washington State.

For some considerable time I have felt that we treat too casually electromagnetic fields, particularly the very high frequencies and above. The long term effects of such radiation is still a matter of conjecture but evidence is accumulating, as is pointed out by Milham, that such fields are very likely carcinogenic.

However, before locking the shack and throwing away the key, it would be interesting to know if the operators who died of leukaemia were:
operating at the high power levels which are fairly common in the USA
or, if they were subject to excessive stray radiation in the shack
or, did the location of the antenna place the shack

or residence directly in line of fire' at the antenna.

If the latter applies, were health checks done on family members or other occupants of the dwelling.

I feel however, that if one adopts a common-sense attitude and operates at or below the modest levels of power at which we are permitted to radiate, if a check is kept for stray radiation in the shack and if the antenna is located a reasonable distance from the shack, one can, I feel, be reasonably certain the electromagnetic field generated and radiated will be innocuous, particularly if the shack has a corrugated iron roof. This presupposes that an operator has adequate room for the separation of the antenna from people, something that may not be possible for a lot of operators — so be on the safe side, keep radiated power low.

73

Richard Barnes VK2BTM,
Railway Cottage,
Bribbaree, NSW. 2594

AR

ETCHING CIRCUIT BOARDS

With reference to my article on Circuit Board Etching, Try This — August AR, using a mixture of Hydrochloric Acid and Hydrogen Peroxide.

I have received advice that this mixture is potentially dangerous.

I apologise for any inconvenience.

Thank you.

Bevan Hay VK4ABV,
MS 346,
Nanango, Qld. 4315.

AR

Without commenting in depth on the use of Hydrogen Peroxide and Hydrochloric Acid (which seems to have dangerous possibilities) I fear that Bevan Hay VK4ABV, has entirely missed the point of my article in etching circuit boards in the June issue of AR.

He states that with Ferric Chloride one can't see what is going on. True, if one drowns the board in etch, but I went to the trouble to stress that the etch SHOULD BARELY COVER THE BOTTOM OF THE BUCKET in which case it will merely WASH OVER the board. And if the etch does not continuously cover the board it can hardly prevent one from seeing the board.

In practice, the board is continuously visible, one can see exactly what is happening and the Ferric Chloride can be used and stored without dangerous fumes being generated.

Roy Hartkopf VK3AOH,
34 Toolangi Road,
Alphington, Vic. 3078.

AR

CORRECTION

I was alarmed to see (page 17, August Amateur Radio) that I had drawn the two zener diodes the wrong polarity. Connected this way, the bias line is short circuited to earth. The consequences are excessive plate current and a severely embarrassed QQEO3/20.

In reference to the article, September AR entitled Another VZ200 RTTY System. I have now added Morse code to the programme and hardware. The hardware modifications are simple.

This modification should be an attractive addition, but am unsure if the system will work on the VZ300.

73,

Lloyd Butler VK5BR,
18 Ottawa Avenue,
Panorama, SA. 5041

We look forward to receiving and printing your follow-up article, Lloyd . . . . ED

AR

EGO IS A DIRTY WORD?

I reluctantly reply to John Eastaugh VK5GY whose letter 'Satisfy an Ego' appeared in Amateur Radio, August.

Will readers please closely examine what John has said to quote: "If a person really wants to know about amateur radio, he will find out, come hell or high water".

He appears to be naive about publicity and public relations. Fact is that people will only find out about our hobby from the direct actions of radio amateurs. It pays to advertise, and one of the main ways to do this is by public displays.

John, and sadly others, fail to understand the purpose of public relations and publicity. The hobby has, for too long, been starved of the oxygen of publicity. My personal experience is, that publicity and displays result in people taking up amateur radio, who would not have otherwise done so.

Comments from members of the public include: "I did not know such an interesting hobby existed" or "Have fiddled with radios many years ago, how do I get a licence?"

John has shown a lack of understanding about the role of public relations, which is different from publicity. Basically, public relations aim to raise the public awareness and understanding of amateur radio. We need to be understood by our neighbours, the general public, municipal councils and state and federal members of parliament. If we are not understood, the hobby will suffer through poor relations with neighbours, and at the hands of ill-informed legislators.

The Amateur Radio Service is relatively small compared with other community groups. For this reason, more PR aware radio amateurs are needed, either acting on their own in their local community or workplace, or in a club, group or WIA branch.

It is an insult for John to say that those who put on amateur radio displays, and that would include participation in JOTA, do so to 'Satisfy Their Own Egos". On the contrary, they are making a positive contribution to the well being of the hobby. Hopefully they will not be discouraged by statements like John's, and will get the support they need.

Jim Linton VK3PC,
4 Ansett Cresent,
Forest Hill, Vic. 3131.

AR

EXTRA CB CHANNEL FOR EMERGENCIES

A second channel for emergency messages. Channel 35, is to be reserved for exclusive emergency use from among the forty UHF channels available to users of CB radios.

The change was to take place from the proclamation of the Radio Communications Act in August 1985.

AMATEUR YOUTH FEATURE

STUDENTS TRACK SATELLITES

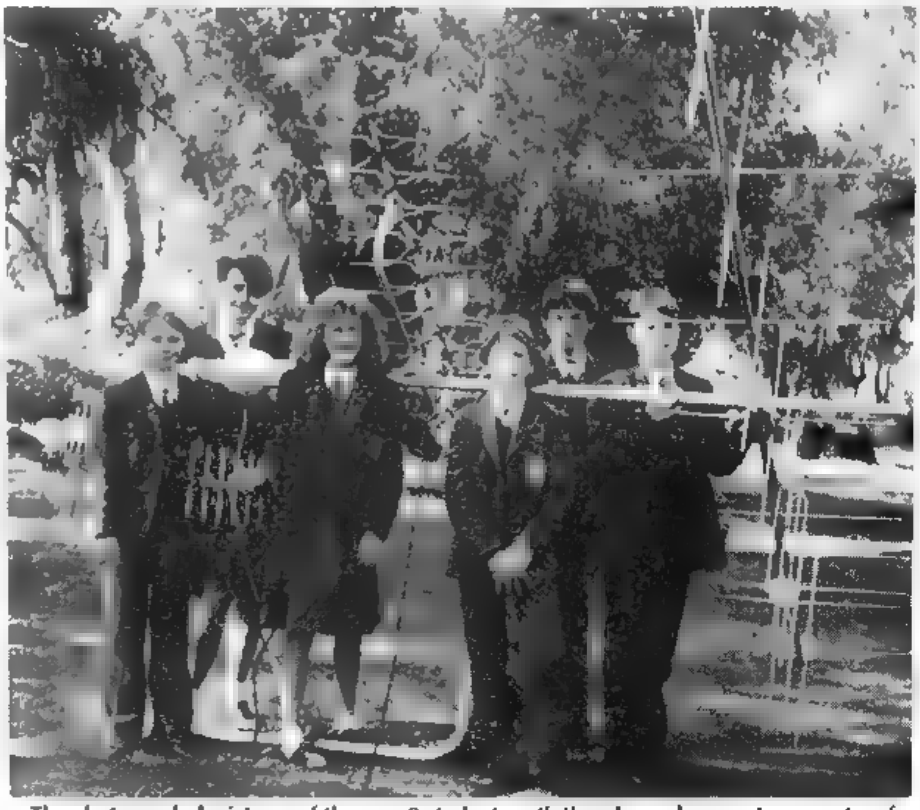
Radio option students in year 9 at Bunbury Cathedral Grammar School have been actively engaged in tracking satellites.

The students have built their own equipment and are now communicating with other radio amateurs via OSCAR 10.

The project is a joint exercise between the mathematics and science departments of the school. The school's senior science master, Keith Peterson VK6PT, has been conducting amateur radio classes since 1975, and the school received a Federal Government Grant in 1978 to establish an earth station.

The students operate with the call sign VK6OT. The students have been working OSCAR 10 since the beginning of the school year and have had over 30 contacts with overseas countries.

Compiled from information supplied by Keith Peterson VK6PT and the South Western Times. 25th July 1985.



The photograph depicts six of the year 9 students with their home-brew antenna system for OSCAR 10. It consists essentially of a vertical square of aluminium piping, with a rotator and bearing in the top section. A fibre glass pole forms the extension on which is mounted the crossed nine element Yagi for 145MHz. The uplink antenna is a 48 element skeleton slot beam on 435MHz, mounted at the top centre of the square parallel to the 2 metre antenna. The whole antenna fits into a second rotator on top of a 30m tower. This set-up gives a full 360 degrees azimuth rotation and 0 to 90 degrees elevation control.

Silent Keys

It is with deep regret we record the passing of —

MR EDWARD BRADLEY	VK5PXZ
15th May 1985	
MR CLIFF PICKERING	VK3ATP
27th July 1985	
MR WALTER HARRY PLANT	VK4FO
1st August 1985	
MR E F WILLIS	VK2PGT

Obituaries

C N (CLIFF) PICKERING VK3ATP

Cliff became a silent key on the 27th July 1985, at the age of 66 years.

Educated at Scotch College and later graduating in Electrical and Mechanical Engineering at the Swinburne Institute of Technology. Cliff was employed by the companies of ICI, GMH and later Telecom, from which he retired in 1977

His interest in amateur radio dated back to his early years, when he obtained an Experimental Licence, later updating to the AOCP in August 1947.

Cliff's association with the WIA extended over 40 years and, one of the highlights of this period, was his dedication to introducing new members to the hobby and the running of meticulous study courses, that gained many amateurs a licence to operate on the bands. For his untiring efforts, Cliff was honoured by being bestowed a Life Membership of the Institute.

Apart from his tutoring activities, he was an active 'home brewer' and later in his hobby career, his station became quite sophisticated, including state of the art, computerised RTTY equipment and the preparation of establishing the mode of ATV.

Other activities of this gentleman were the sports of bowling, boating and fishing and the love of his Lodge, being honoured by becoming a Master in 1982.

Cliff, a member of the RAOTC and the Moorabbin District Radio Club, will not be forgotten for the help he has given to so many, through his quiet, unassuming manner which, endeared him to all that had the pleasure of knowing him.

Sincere condolences are extended to his XYL Margret, daughters Natalie, Jennie and their families.

Ike Tarbit VK3OW

WALTER HARRY PLANT VK4FO

All, who in their lifetime, were fortunate enough to cross the path of 'Wally', as he was affectionately known, will be saddened by the news of his sudden death from a heart attack on Wednesday, 1st August 1985.

Wally was born in Birmingham, England, in 1925 and during World War II saw service as a Wireless Operator, mainly as a crew member of the Lancaster . . . 'Lonesome Lola'. He migrated to Australia after the war via East Africa arriving here in January 1962. As a UK amateur he held the call sign G3BQC before moving to East Africa, where his call sign changed to VQ4FO. This changed to VK4FO on his arrival in Australia. He was an active member of the Queensland Division of the WIA and, whenever his health permitted, strongly supported WICEN.

Maybe, as a rub-off from his visit to the Sutton-Coldfield Jamboree in Birmingham in 1958 (where Jamboree on the Air saw its origins) and because of his commitment to his three sons, he joined the Scout movement, becoming a Group Leader of his local Group, and in 1970, Assistant Branch Organiser of Jamboree on the Air in the Queensland Branch.

Wally was a quiet and gentle person, highly regarded by all his friends and, when one achieved that status, one came to know his many other talents, not least of which was his expertise in leatherwork. He was a wonderful husband to Monica, a devoted father to his three sons and one daughter, and a fine father-in-law and grandfather to the rest of his family.

He will be sadly missed by them all, as well as his many other friends in amateur radio, scouting and other fields in which he became involved.

Vale Wally.
Noel Lynch VK4BNL

AR

THE GREAT REPEATER RUMPUS

Lindsay Lawless VK3ANJ
Box 112, Lakes Entrance Vic 3909

Our new president said we needed a repeater, one which we could call our own and which would make us independent.

Nobby woke up, looked around sleepily and said *"We've got a repeater, me and Jim built it and got it going three years ago. I haven't heard much traffic on it since old Bob died but I thought everyone knew about it"* Our startled president looked disappointed, he saw his chance of impressing us disappearing at this his maiden debut as chairman

"Yeah," said George *"it works alright between my place and Jim's — we usually have a talk on our hand helds bringin' in the cows"*. Our curious president asked *"does anyone else use it?"* and *"is it any good?"* Some of those present had heard of it but didn't know which channel it was on, the rest hadn't heard of it. It appeared that Nobby, Jim, Bob (deceased, and George had enjoyed an exclusive channel for some time. *"I think we had better appoint a repeater committee to investigate this"* said our efficient president. *"would you be leader Nobby?"* Nobby declined and pointed out that he couldn't be very active until all the cows had dried out but he would provide the circuit diagram and show the way to the four wheel drive track to the site

Several meetings later the repeater committee reported as follows — they made their way to the repeater site without incident and found everything in good working order; the batteries were fully charged, electrolyte level was correct and tests to and from the site confirmed transmitter output and receiver sensitivity satisfactory. The general opinion was that Nobby was doing a good job. *"I haven't been near the place for about eighteen months"* interjected Nobby. Our confused president fearing complications requested further investigation and another report

At the next meeting the repeater committee reported that their representative had talked with the owners of the site and their new technician. The technician said he knew the equipment referred to and had kept it in good order and condition. Our representative thanked him profusely to which he replied *"If I'd known it was amateur gear I would have thrown it over the side"*. Which he did on his next visit

The repeater committee is now charged with the task of salvaging the Nobby repeater from a fern gully at the foot of the mount and repairing this for installation at a new site to be determined

Our retiring president has discovered the joys of HF DX. Nobby sleeps through all meetings waking only for supper

AR

Up until a few months ago it had been unlawful for extra phone points to be put in unless the work was done by Telecom

However a Telecom spokesman said this had changed and products were now available to help anyone do it themselves

Two new products being sold by Telecom were the telephone extension cord and telephone double adaptor

A leaflet entitled "Handy, Do-It Yourself ways to adapt your phone to your needs explains the products.

The extension cord is 10 metres long and comes complete with a plug one end and a socket on the other

Suggested uses for the double adaptor include extra telephones, answering machines, Viatel terminal, data modems or other telecommunications equipment

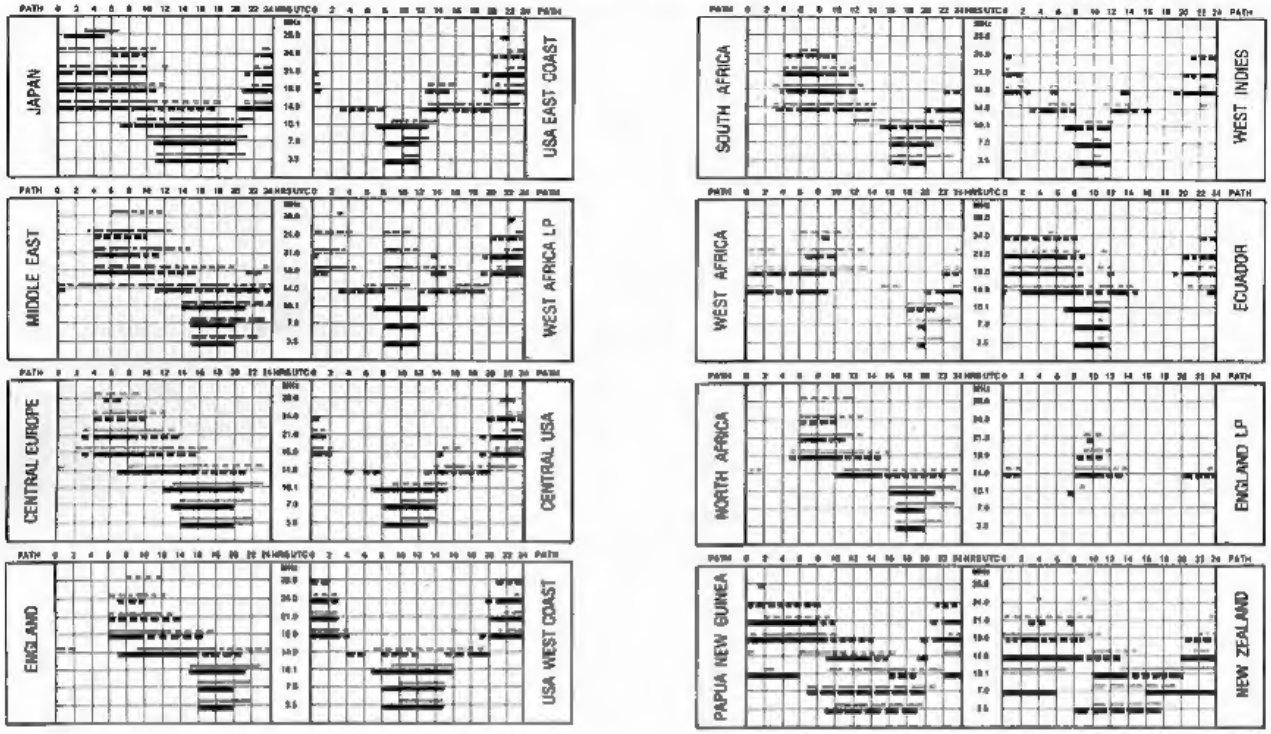
"Make your telephones extra handy — use the double adaptor and extension cord together to connect an extension phone in your home or office," said Telecom

For further information contact your nearest Telecom Business Office

AR

IONOSPHERIC PREDICTIONS

Len Poynter VK3BYE
14 Esther Court, Fawkner, Vic, 3060



SOLAR GEOPHYSICAL SUMMARY-July 1985

Solar activity was low in July. On second and ninth, there were M class solar flares. The 10cm flux was elevated during the period from the first to 14th, corresponding to the transit across the visible disc of an active region which has produced energetic flares on previous rotations. The 10 cm flux again increased after the 25th when the active region returned, once more, to the visible disc.

The 10cm flux peaked at 101 on the ninth, which was the highest value since the same day, last year.

Daily 10cm readings were 1=74, 2=82, 3=79, 4=78, 5=81, 6=85, 7=95, 8=95, 9=101, 10=99, 11=94, 12=90, 13=83, 14=74, 15=71, 16=70, 17=70, 18=70, 19, 20, 21, 22, 23, 24=69, 25=73, 26=75, 27=77, 28=79, 29=81, 30=81, 31=80. The average was 79.1 with a Sunspot average of 30.8.

GEOMAGNETIC-JULY 1985

1st July . . . Geomagnetic field at storm level A=15.

4th-8th July . . . Disturbed, with intervals of minor storm level A=24, 16, 22, 20, 16.

11th-14th July . . . Generally active, on the 12th there were storm conditions A=15, 35, 15, 15.

17th July . . . Disturbed, particularly 1100 to 1700UTC A=19.

23rd and 24th . . . The field was at storm level from 0000 to 0600UTC. Active on 24th A=11 ,15.

26th and 27th July . . . Active A=16, 17.

31st July . . . At storm level after 0600UTC A=38.

The most disturbed days were the 12th and 31st A=35, 38. The month was a disturbed one, but most were relatively weak.

Courtesy of the IPS Radio and Space Services.

AR

Bill the Philosopher

Ted Holmes VK3DEH
20 Edmunds Street, Parkdale, Vic. 3195

Bill Blitheringtwit was sitting in his garden thinking about life in general. He had come to the conclusion that life is like a battery. It had a plus and a minus. Sometimes he had got the distinct impression that there was an over-abundance of minuses but, on reflection, he had to admit that every now and again appeared a plus.

For example, there was that business with his neighbour's TV set the other day. Bill wasn't to know that the turret tuner would come away in his hand the way it did. It had cost Bill a few dollars to get the unit fixed, but he guessed (correctly) that it would be a very long time indeed before the neighbour would mention TVI again.

Then there was the XYL. Getting into the bowling club hadn't been a resounding success for Bill, but the XYL had got very interested and, in fact, was still an active member. This meant that she was absent from the house, leaving Bill to do his own thing for long periods. This was much appreciated. After all, wasn't amateur radio all about doing your own thing?

So things had worked out pretty well, on the whole. Bill sighed luxuriously and turned the pages of the magazine he had been glancing at. There was a very interesting article he had been reading about RTTY. He'd never been involved in that field of activity and was keen to get into it.

He had acquired an old Model 100 and had been boning up on the modem required to get on the air. It didn't look too difficult and, in any case, Bill prided himself on his ability to overcome problems.

All he needed were a few bits and pieces and, before you knew it, he would be on the air making those odd bird-like chirpings he had heard so often, particularly on his favourite band, 40 metres. He decided to have a rummage around his garage for some bits.

The bench was covered in a layer of assorted junk and Bill found himself an ice-cream carton to hold anything useful he might find. Several minute's diligent searching didn't turn up anything other than useless rubbish. However, he did come across a small electric drill which he thought might be handy to make the holes in the circuit board. He hadn't used the thing for many years and couldn't think why he had left it simply lying around on top of the bench, instead of putting it away somewhere. He thought he would try it out.

The power cord looked a bit frayed, but at least it was continuous. He plugged it in and turned on the power. Almost immediately he dropped the drill, as a shock almost paralysed him. Now he remembered why he hadn't put the thing away. It was live. At this stage the drill began to emit smoke, finally bursting into flames. Bill ran over to the garden tap, turned on the water, and directed the hose on to the bench top. There was a loud bang from the house fuse box.

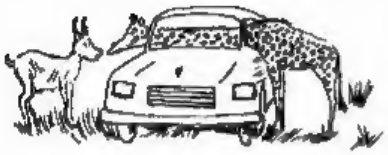
It occurred to him that perhaps today was one of those minus days after all.

AR

ANSWERS TO NOVICE TRIAL EXAM PRINTED IN THIS ISSUE

1b	11b	21a	31d	41d
2c	12a	22d	32a	42a
3c	13d	23c	33d	43b
4c	14b	24b	34b	44b
5d	15c	25b	35a	45d
6d	16b	26c	36c	46c
7a	17b	27a	37c	47c
8d	18a	28d	38b	48c
9a	19c	29c	39d	49a
10c	20b	30c	40c	50b

NOTICE



All copy for inclusion in the December issue of AR must arrive at the Federal Office by midday on 23rd October.

HAMADS

PLEASE NOTE: *If you are advertising items FOR SALE and WANTED please write each on seperate sheets, including ALL details, eg Name, Address, on both. Please write copy for your Hamad as clearly as possible, preferably typed.*

- **Please insert STD code with phone numbers when you advertise.**
- Eight lines free to all WIA members. $9 per 10 words minimum for non-members.
- Copy in typescript please or in block letters double spaced to PO Box 300, Caulfield South 3162.
- Repeats may be charged at full rates.
- QTHR means address is correct as set out in the WIA current Call Book.

Ordinary Hamads submitted from members who are deemed to be in the general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being resold for merchandising purposes.

Conditions for commercial advertising are as follows: The rate is $22.50 for four lines, plus $2 per line (or part thereof) minimum charge $22.50 pre-payable. Copy is required by the deadline as stated below indexes on page 1.

☐ TRADE ADS ☐

AMIDON FERROMAGNETIC CORES: Large range for all receiver & transmitting applications. For data & price list send 105x220mm SASE to: RJ & US IMPORTS, Box 157, Mortdale, NSW. 2223. (No enquiries at office . . . 11 Macken Street, Oakley). Agencies at: Geoff Wood Electronics, Rozelle, NSW. Truscott Electronics, Croydon, Vic. Willis Trading Co, Perth, WA. Electronic Components, Fyshwick, Plaza, ACT.

☐ WANTED — NSW ☐

TRANSMITTING VALVES: 4-250A or 4-400A. VK2KGZ, QTHR. Tel:(046) 25 1519.

☐ WANTED — VIC ☐

AUDIO WATT METER: Heathkit AW-1 or similar resistive load watt meter. VK3OM, QTHR. Tel:(03) 560 9215.

☐ WANTED — QLD ☐

EIMAC VALVE SOCKET: Type SK600B, air chimney type SK806. Also require 8874 valve & 5-6kVW filter capacitors. David VK4BGB. Tel:(07) 844 1749.

VIDEO HEADS: Can anyone supply & fit new video heads to Shibaden SV700E. VK4KD, QTHR. Tel:(075) 58 2293.

☐ WANTED — SA ☐

DRAKE R4C COMM RX: Pref with filters. No mods. Must be in good cond. Pay good price for right set. Interstate answers welcome. Bob. Tel:(087) 25 1511.

HELRAY PEAK POWER METER: Ranging from 150-500W. Will pay good price. Graham VK5YM, QTHR. Tel:(087) 25 9752 after 6.00pm.

☐ FOR SALE — ACT ☐

ICOM IC451A: As new $635. Yaesu FV707DM digi VFO, new $145. KLM 140W, 2m linear, $170. HP606A and HP608D sig gen, $325 each. VK1VP, QTHR. Tel:(062) 49 6348 AH

☐ FOR SALE-NSW ☐

AR7 RX: With complete set of coils. Modified to a self contained, single unit with int power supplies. 1st RF stage mod 6SK7. Audio stage mod for ext spkr use only. RF gain cut off mod. AGC & BFO on sep switches. Recond & aligned. Works very well. $200. Unit must be collected. VK2EES, QTHR. Tel:(067) 36 2383 AH.

FOOD RECIPE COOK-BOOK: VK2AXZ limited edition, collector's item, worthy cause. $2 posted. VK2ATZ, Westlakes RC, Box 1, Teralba, NSW 2284.

KENWOOD TL922 LIN AMP: 2 3-500Z tubes, new cond with orig instr manual, orig pack. $1600. Manfred VK2RV, QTHR. Tel:(02) 371 8854.

KENWOOD TR2400: 2m h/held complete with all manuals, spare nicad batt, fast & slow chargers & spkr mic. $200. Kenwood TS930S with built in tuner, extra filters, very good cond. $1750. 2m power amps, 50W, $60 & 80W, $100. ETI Modem, 300 & 1200 BAUD, modified for Packet Radio use. $100. Dentron Super Tuner, 1kW 160-10m with in built high power balun. $150. VK2HL. Tel:(02) 961 4762.

KENWOOD TS830S TCVR: $850. Swan TB2A beam ant, $155. CDE HAM II ant rotator with control, $150. Antenna mast with cables, $150. Adigawa PM2H power/SWR meter, $65. Zephyr 21ZA mic in grey handpiece, $15. Tel: 871 7758.

KENWOOD TS700A: 10W, all mode tcvr, 144-148MHz, 240VAC & 12VDC operation. $300. Yaesu FT227R. 10W, 2m FM mobile tcvr. $150. Athol VK2BAD. Tel:(02) 605 7731.

SWAP IC700R: amateur bands rx in 1st class cond, cannot fault, very selective & sensitive rx, for general coverage rx. Tel: Bribbaree 61.

YAESU FT107DMS: 160/10m inc WARC bands. 240VAC/13.5VDC. 12mem chs. CW & AM filters fitted. H'held scan mic. Orig cond, top perform, little use. Oper & w'shop manuals. Extendor boards $850. VHF & UHF lin amp. Mirage B108 (2m) 80W out. Tokyo Hi Power mod HL45 (70cm) 45W out. Both have pre amps & suitable SSB, FM, CW modes. As new. $150 each .VK2DJH. Tel:(043) 24 7630.

YAESU VHF H/HELD 208R: Ex con, new batt pack & charger, spkr/mic. $260 ONO. FDK 2m Allmode 750GX. Ex cond. $420 ONO. Station monitor, Kenwood SM220 used only once. Has BS5 pan adaptor for TS520. $350. Tel:709 2826 AH.

☐ FOR SALE-VIC ☐

CB BASE UNIT: converted to 10m band. Freq 28.300-28.600MHz, SSB/CW. Built in PS & SWR meter. VGC $100 ONO. Mark VK3PUC. Tel:(053) 32 1333.

GENUINE SHACK CLEARANCE OF PRELOVED AMATEUR GEAR: 2 Swan design 9 el Yagis. Sell separately or $50 pair. CE55DX, 5 el tribander, 8m boom. $225 ONO. TS520 Kenwood tcvr. VGC & MC35S mic. $450 ONO. SP520 match spkr incl with above. Icom IC202 tcvr & mic. VGC. $100 ONO. Icom IC502 tcvr & mic. EC. $110 ONO. All original pack & manuals for above. Home brew linear (RSGB 640 design) & PS, 144MHz. $50 ONO. B40 rx. 640kHz-30.5MHz. Ex HMAS Melbourne. GC. Collectors item. $70 ONO. RTTY Terminal. ETI Design. See working. (730/731) Throw in Model 15 tape perf/sender. 3 spare motors. $100 ONO. Rolls of paper for all machines, fuses, etc. ATU 'Z' match RSGB. $30. ONO. Also various meters. $5 each. Geoff VK3ADB, QTHR. Tel:(053) 32 1037.

KENWOOD TR2400: H/held 2m tcvr & ST1 pulse charger with ext mic & aerial connections for base station operation. MC30S 500ohm mic to suit the lot. $250. Incl carry case. Frank. Tel:(03) 529 1686.

KENWOOD TS530SP: In VGC. $850. Eddystone 840C, gen cov rx. Very seldom used. $240. Jim. Tel:(03) 387 6920.

NATIONAL RJX601 PORT TCVR: 6m, VFO controlled, FM/AM. $180. Realistic AX190 comms rx. 11 bands inc CB & VFO input. $180. VK3CKD. Tel:(03) 561 5119.

PERFECT DX QTH: Large 2 storey home on 1.25 acres, for sale. Near summit of Dandenongs, good views of city, access nearly every VK3 repeater, 4 bedrooms, radio room, sauna, formal lounge & dining, billiards & games room, with built-in bar, large aviary & more. Lance VK3DIM or Laurie XYL. Tel:(03) 755 1758 or 755 1900

ROBOT 400: Little use & in BC, with full documentation. Includes partly built key board, with all parts and circuits. Tel:(03) 725 9285.

ROTATOR: Able CT1000 computerised rotating system. 6 mths old. $500 ONO. 4 ATN 16 lb, 432MHz Yagis, power divider & 'H' frame. $250. Andrew VK3BEL, QTHR. Tel:(053) 34 1397, weekends.

SHACK CLEARANCE: Antique coils, tuning gangs, dials, sockets, silk wire, misc components, etc. Early projector globes. Meters, transformers, genemotors, valves, 100s, many in orig early boxes. Large spaced tuning gangs, tx inductors. Powerful transformer, 100V multi tapped, 20A. Pye TRP1 port tcvr in case, with whips, 2-7MHz. GC. Hi band carphone. Command tx, 7-9MHz, GC. Much more, list available. Peter VK3APN, QTHR. Tel:(03) 211 8979.

YAESU FT-230R, 2m FM tcvr. 144-148MHz in 5kHz steps. Fully microprocessor controlled. 10 mem chan, 25W o/p. $320. VK3BEW. Tel:(057) 21 2363.

YAESU YM38 SCAN MIC: Suit all current Yaesu rigs. Sell for $35 or swap for MC50 mic. Yaesu HY55 h/phones. $10. Yaesu hand mic, 4 pin connector. Suit older gear. $10. Icom SM6 desk mic. Brand new in box. $45. VK3OM, QTHR. Tel:(03) 560 9215.

☐ FOR SALE-QLD ☐

DX100 REALISTIC GEN COV COMM RX: 520kHz-30MHz. As new in orig box & pack. Instr manual. Cost $159. Sell $95. Tel:(071) 94 1271.

FT75B WITH FP75B & DC75B POWER SUPPLIES: Orig cartons. Also FV50C VFO & spare finals. On air trial if reqd. Goes well. 100W PEP $275. Bill VK4BN, QTHR. Tel:(071) 93 1178.

YAESU FL2100B LIN AMP: Unmarked, as new. $400. VK4AGL. QTHR. Tel:(071) 41 2315.

TR2400 TCVR: H/h 2m FM synthesised 800 ch, 10 mems, scan ext/mic, mains charger, manuals. Good cond. $180 (less batt). DC200 batt power supply for FT200 tcvr. $50. VK4AKU, QTHR. Tel:(071) 45 1714.

TRS 80 MODEL 1 LEVEL II 16k COMPUTER: Macrotronics M80 CW interface, B/W TV monitor, cassette recorder & assorted software. Best offer. John VK4KOQ. Tel: (079) 58 9485.

VALVES: Tx valves, QB3-300 (4/125) $20, pair used 572Bs $70. 8008 mercury rectifiers (new) $10. Plate transformer 4kV CT, 500mA continuous $50. David VK4BGB. Tel:(07) 844 1749.

VALVES: 2 6LQ8, new. $10 each. 8 6KD8, new matched pairs. $28 pair. 4 6LF8 matched pairs. $30 pair. 6GK6, 6BE6, 6EW6, 12BA6, 12BZ6, 12BE6, 12AX7, 6BY7, 6BQ5, 6BW6, 6BA6, 6AV6, 6DX8, 6N8, 6BM8, 6AL5, 6DA6, 6DC8. $4 each. All new. Keith VK4KS, QTHR. Tel:(07) 353 [illegible].

☐ FOR SALE-WA ☐

EIMAC 4CX-250 TX TUBES: In absolutely mint cond, in orig sealed poly packs. 4 only at $50 each. Also STC MTR151-25A, 25W solid state, 70-85MHz tcvr, 12VDC opn. $15 each. Plus P&P. Also new RF pwr transistors, 2N5589. $8 each. 2N5590, $9 each. 2N5591, $10 each. Ray VK6PW, QTHR. Tel:(09) 339 1359.

ADVERTISERS' INDEX

Just when you thought you'd seen it all . . . .

Latest Generation Receivers from Yaesu!

FRG9600 Scanner

Never Before! A scanning receiver that has so many features, offers so much. And it's absolutely ideal for the amateur, too! It offers **continuous coverage** between 60 and 905MHz, in all modes (SSB up to 460MHz), with FM and AM in both wide and narrow bandwidth. But that's not all:

You get 100 keypad-programmable memory channels, full rotary dial tuning as well as push-button tuning, fully programmable scanning in various modes . . . and much, much more.

PLUS it's a CAT unit: with the optional interface you can control its operation from most micros! Virtually unlimited customised control functions in software are possible!

Impressed? Not half as impressed as you will be with one in your shack!

Specifications:

Range: 60 — 905MHz (SSB 60 — 460MHz)
Modes (3dB bandwidth)

FM (N): 15kHz 0.5uV Sens (12dB SINAD)
FM (W): 180kHz 1.0uV Sens (12dB SINAD)
AM (N): 2.4kHz 1.0uV Sens (10dB S+N/N)
AM (W): 6kHz 1.5uV Sens (10dB S+N/N)
SSB : 2.4kHz 1.0uV Sens (10dB S+N/N)

Conversion:	Triple for FM (N) AM & SSB, Double for FM(W)
IFs:	45.75MHz, 10.7MHz and 455kHz
Image rejection:	60-460MHz — 50dB typical 460-905MHz — 40dB typical
Memory Channels:	100
Power Supply:	12-15V DC 550mA (lithium cell back-up)

LIMITED STOCK!

(Includes power supply) **$799**

Cat D-2825

Orders taken now at your nearest DSE store

DICK SMITH ELECTRONICS

PTY LTD

B-052

FRG8800 Receiver

What about HF, you ask?

No worries. Yaesu design engineers have excelled themselves yet again!

- General coverage from 150kHz to 30MHz
- All mode, including AM wide and narrow and FM narrow
- 12 internal memories (push-button) with scanning functions
- Selectable AGC rates, noise blanking widths & tuning rates
- Dual digital clocks (great for different time zones)

And so much more!

PLUS, it's also a CAT system: add a microcomputer and the optional interface and you can transfer function to your micro!

And even more: with the optional VHF coverter (fits completely inside) you also get 118 - 174MHz.

It also uses the '7700' series of accessories: active antenna, and antenna tuner.

Specifications:

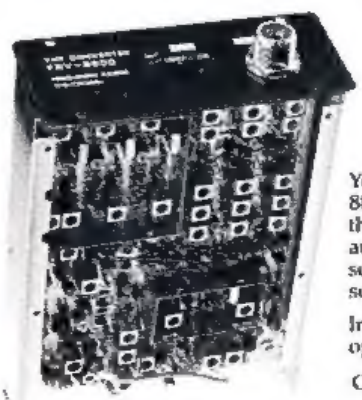
Modes:	AM, SSB & CW in both wide and narrow; FM (N)
Sensitivity:	AM, SSB & CW: 10dB or better (S+N/N)
	FM (N): 20dB or better (S+N/N)
Selectivity:	AM (W) 6kHz (−6dB), 15kHz (−50dB)
	AM (N), SSB, CW 2.7kHz (−6dB), 8kHz (−50dB)
	FM (N) 12.5kHz (−6dB), 30kHz (−40dB)
Antenna Imp:	50 ohms and 500 ohms (VHF conv 50 ohms)
Power:	240V AC

Cat D-2820

Alternative: FRG-8800 SW — 2MHz to 30 MHz range, otherwise identical **$829.00**
Cat D-2821

$899

LIMITED STOCK!



Optional VHF Converter

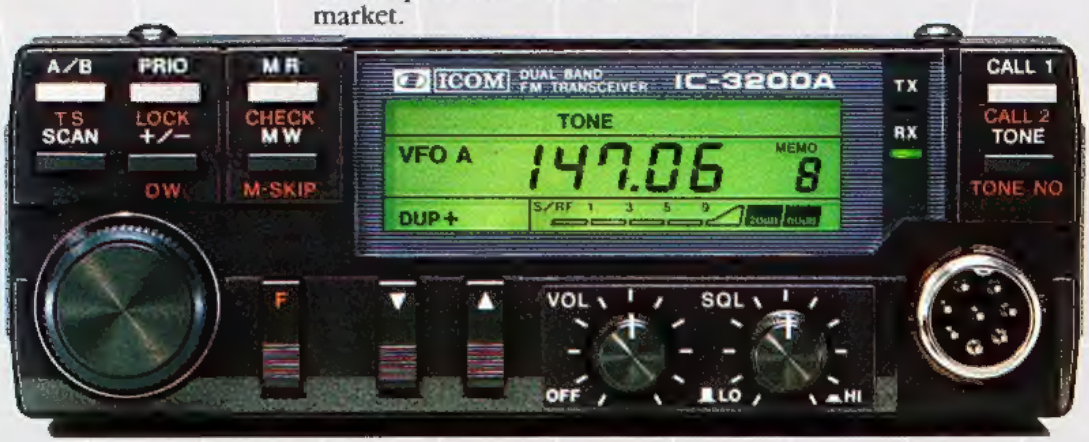
Yes! 118-174MHz from your FRG-8800. And it fits completely inside the set — operation is completely automatic. Full dial or pushbutton selection, same features as standard set.

Incredible versatility - and full CAT operation too.

Cat D-2823 **$189**

Your entire spectrum? Covered!

Icom's latest dual band IC-3200A delivers a powerful 25W punch at VHF & UHF. Big performance. Small size. *Lowest price dual bander on the market.



HF, VHF, UHF: Icom's spectrum of technology.

An ultra compact 100W HF transceiver small enough to go mobile. The IC-735 combines size, superior performance, & FM, CW, LSB, USB, AM to become a new HF standard: yet the simplified front panel makes the IC-735 easy to use, even when mobile.

Powerful, clean performance in the bands you use most. Icom's team perform for you at your local authorized dealer.

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